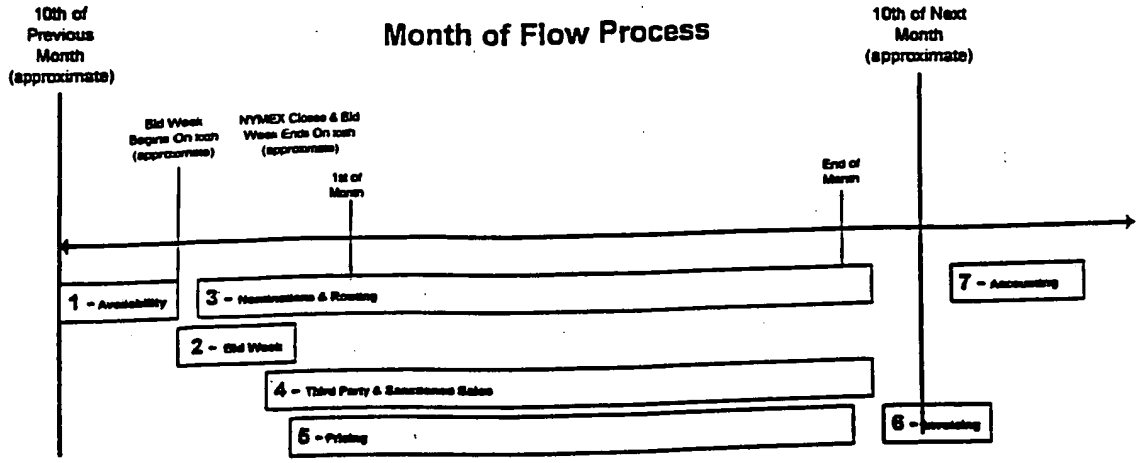
Month of Flow Process
10th of Previous Month (approximate)
10th of Next Month (approximate)
Bid Week Begins On 10th (approximate)
NYMEX Close & Bid Week Ends On 10th (approximate)
1st of Month
End of Month
1 - Availability
3 -
7 - Accounting
2 - Bid Week
4 -
5 -
6 -

FIG. 1

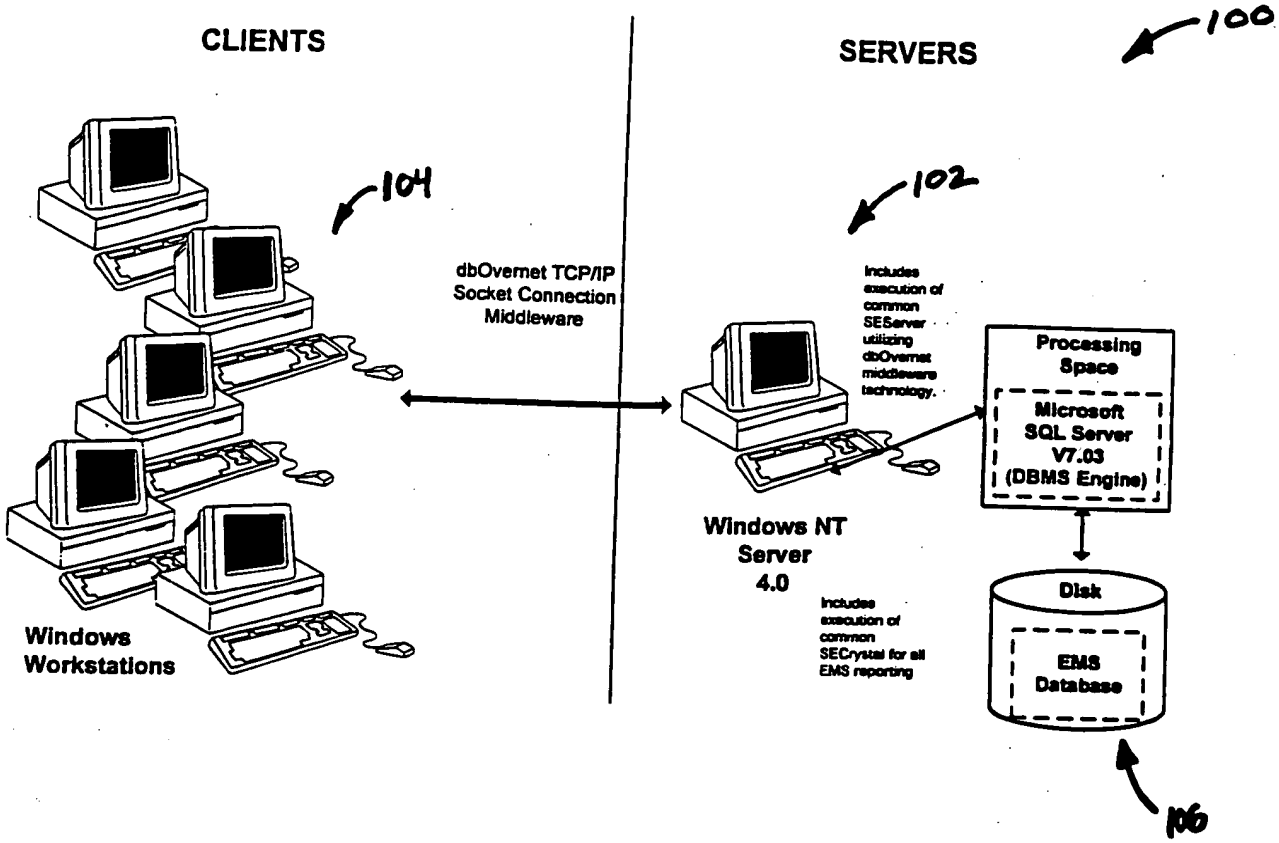
CLIENTS
SERVERS
100
104
102
dbOvernet TCP/IP
Socket Connection
Middleware
Includes
execution of
common
SEServer
utilizing
dbOvernet
middleware
technology.
Processing
Space
Microsoft
SQL Server
V7.03
(DBMS Engine)
Windows NT
Server
4.0
Includes
execution of
common
SECrystal for all
EMS reporting
Disk
EMS
Database
106
Windows
Workstations

FIG. 2

Companies Subject Area (ERD)

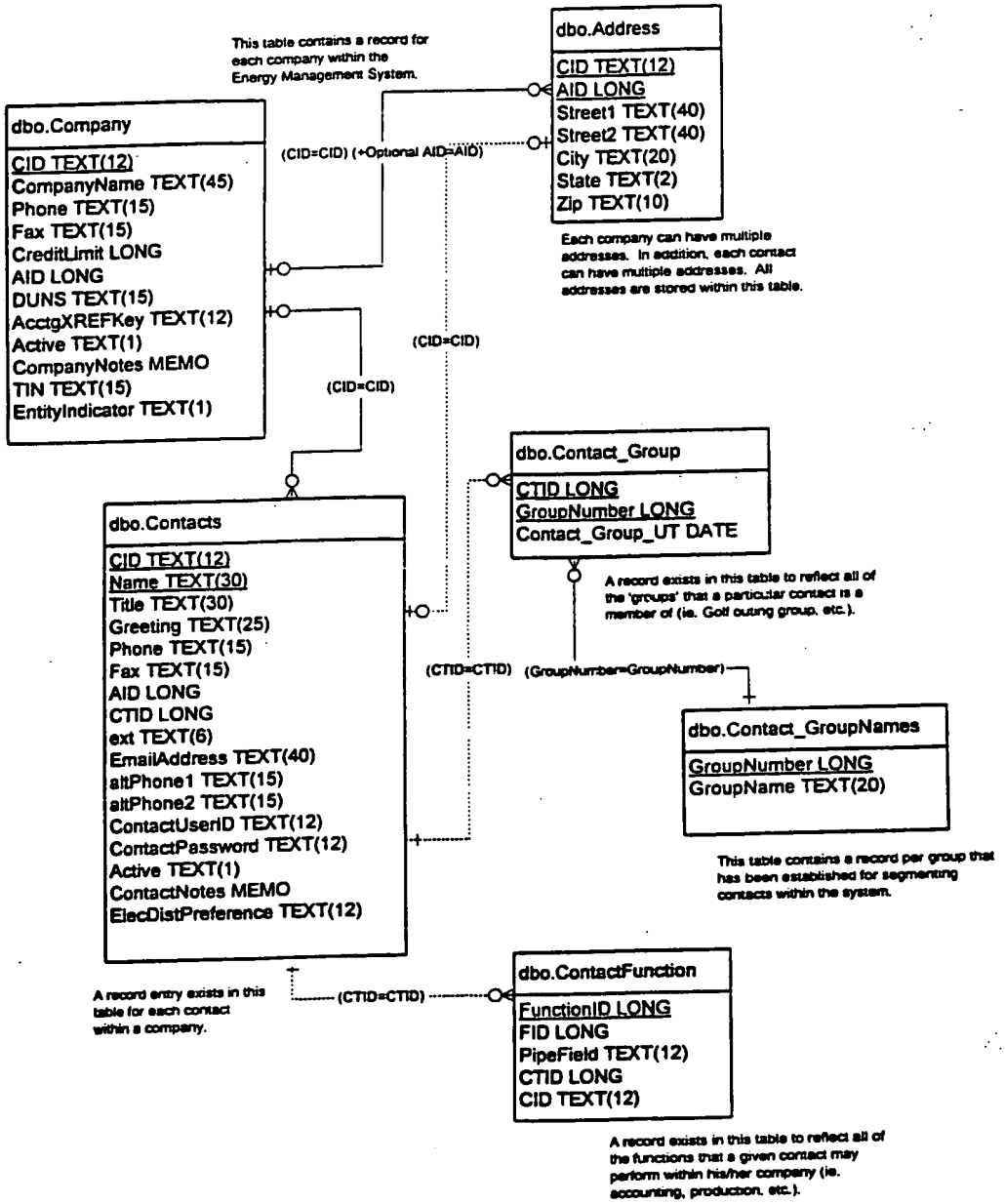

FIG. 3A

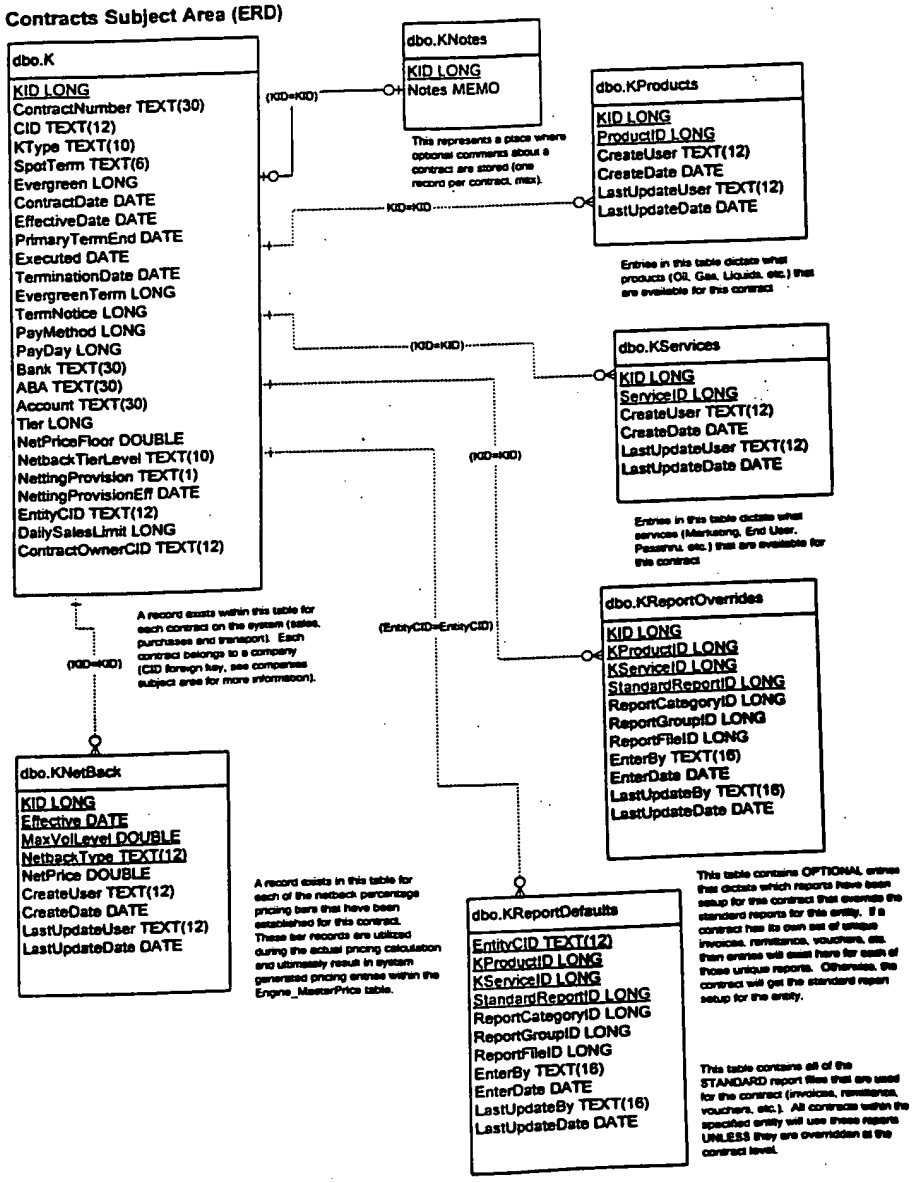
Contracts Subject Area (ERD)
dbo.K
KID LONG
ContractNumber TEXT(30)
CID TEXT(12)
KType TEXT(10)
SpotTerm TEXT(6)
Evergreen LONG
ContractDate DATE
EffectiveDate DATE
PrimaryTermEnd DATE
Executed DATE
TerminationDate DATE
EvergreenTerm LONG
TermNotice LONG
PayMethod LONG
PayDay LONG
Bank TEXT(30)
ABA TEXT(30)
Account TEXT(30)
Tier LONG
NetPriceFloor DOUBLE
NetbackTierLevel TEXT(10)
NettingProvision TEXT(1)
NettingProvisionEff DATE
EntityCID TEXT(12)
DailySalesLimit LONG
ContractOwnerCID TEXT(12)
(KID=KID)
dbo.KNotes
KID LONG
Notes MEMO
This represents a place where optional comments about a contract are stored (one record per contract, max).
dbo.KProducts
KID LONG
ProductID LONG
CreateUser TEXT(12)
CreateDate DATE
LastUpdateUser TEXT(12)
LastUpdateDate DATE
Entries in this table dictate what products (Oil, Gas, Liquids, etc.) that are available for this contract
dbo.KServices
KID LONG
ServiceID LONG
CreateUser TEXT(12)
CreateDate DATE
LastUpdateUser TEXT(12)
LastUpdateDate DATE
Entries in this table dictate what services (Marketing, End User, Pass-thru, etc.) that are available for this contract
dbo.KReportOverrides
KID LONG
KProductID LONG
KServiceID LONG
StandardReportID LONG
ReportCategoryID LONG
ReportGroupID LONG
ReportFileID LONG
EnterBy TEXT(16)
EnterDate DATE
LastUpdateBy TEXT(16)
LastUpdateDate DATE
(EntityCID=EntityCID)
A record exists within this table for each contract on the system (sales, purchases and transport). Each contract belongs to a company (CID foreign key, see companies subject area for more information).
dbo.KNetBack
KID LONG
Effective DATE
MaxVolLevel DOUBLE
NetbackType TEXT(12)
NetPrice DOUBLE
CreateUser TEXT(12)
CreateDate DATE
LastUpdateUser TEXT(12)
LastUpdateDate DATE
A record exists in this table for each of the netback percentage pricing tiers that have been established for this contract. These tier records are utilized during the actual pricing calculation and ultimately result in system generated pricing entries within the Engine_MasterPrice table.
dbo.KReportDefaults
EntityCID TEXT(12)
KProductID LONG
KServiceID LONG
StandardReportID LONG
ReportCategoryID LONG
ReportGroupID LONG
ReportFileID LONG
EnterBy TEXT(16)
EnterDate DATE
LastUpdateBy TEXT(16)
LastUpdateDate DATE
This table contains OPTIONAL entries that dictate which reports have been setup for the contract that override the standard reports for this entity. If a contract has its own set of unique invoices, remittance, vouchers, etc. then entries will exist here for each of those unique reports. Otherwise, the contract will get the standard report setup for the entity.
This table contains all of the STANDARD report files that are used for the contract (invoices, remittance, vouchers, etc.). All contracts within the specified entity will use these reports UNLESS they are overridden at the contract level.

FIG. 3B

D0 5 6 4 L 3 5 0 5 0 4 L

Deals Subject Area (ERD) (1 of 2)

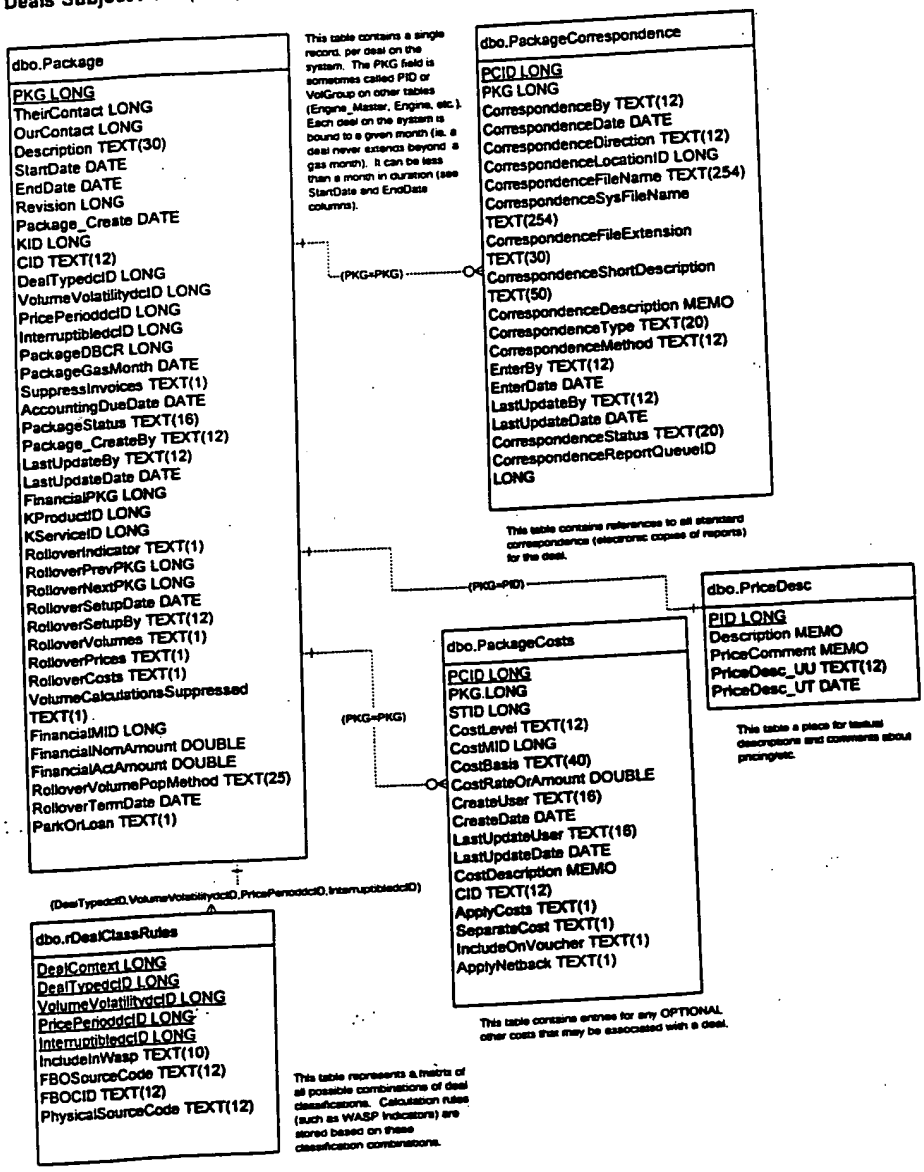

FIG. 3C

068.0003 - 4703504

Deals Subject Area (ERD) (2 of 2)

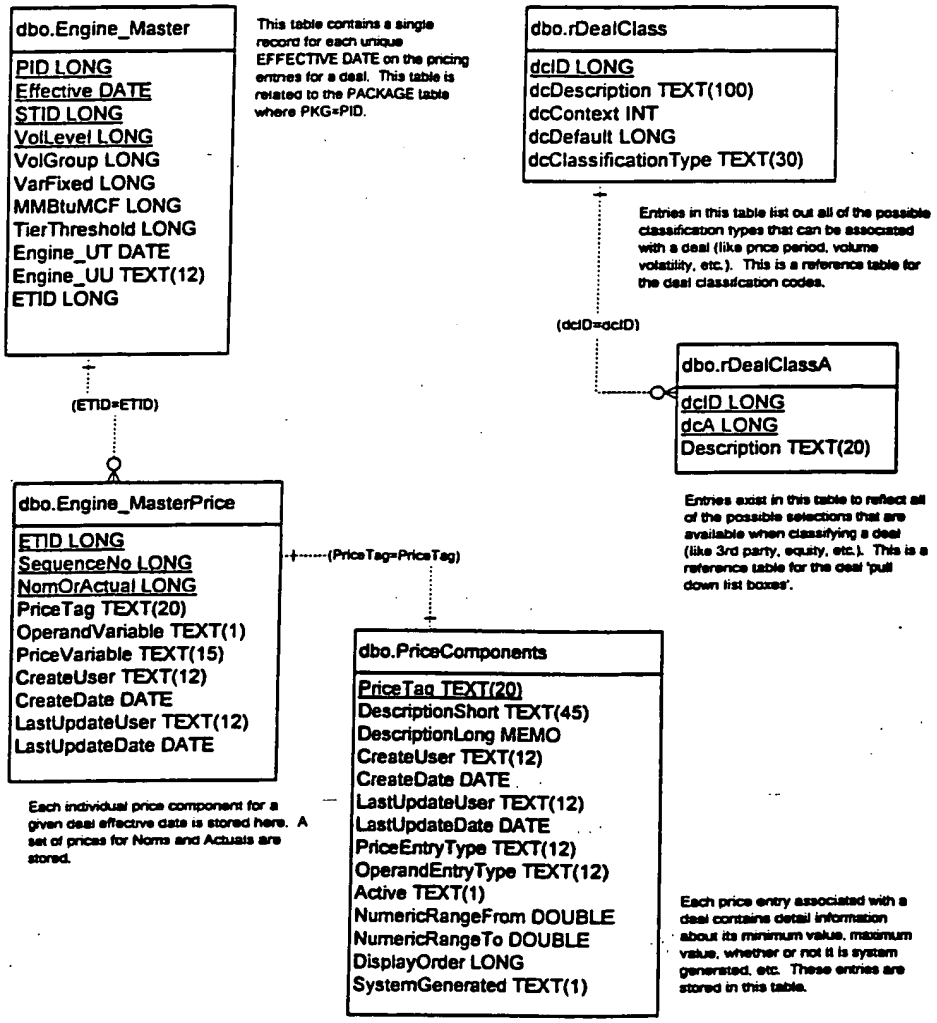

FIG. 3D

10015350 062801

Gas Inventory Subject Area (ERD) (1 of 2)

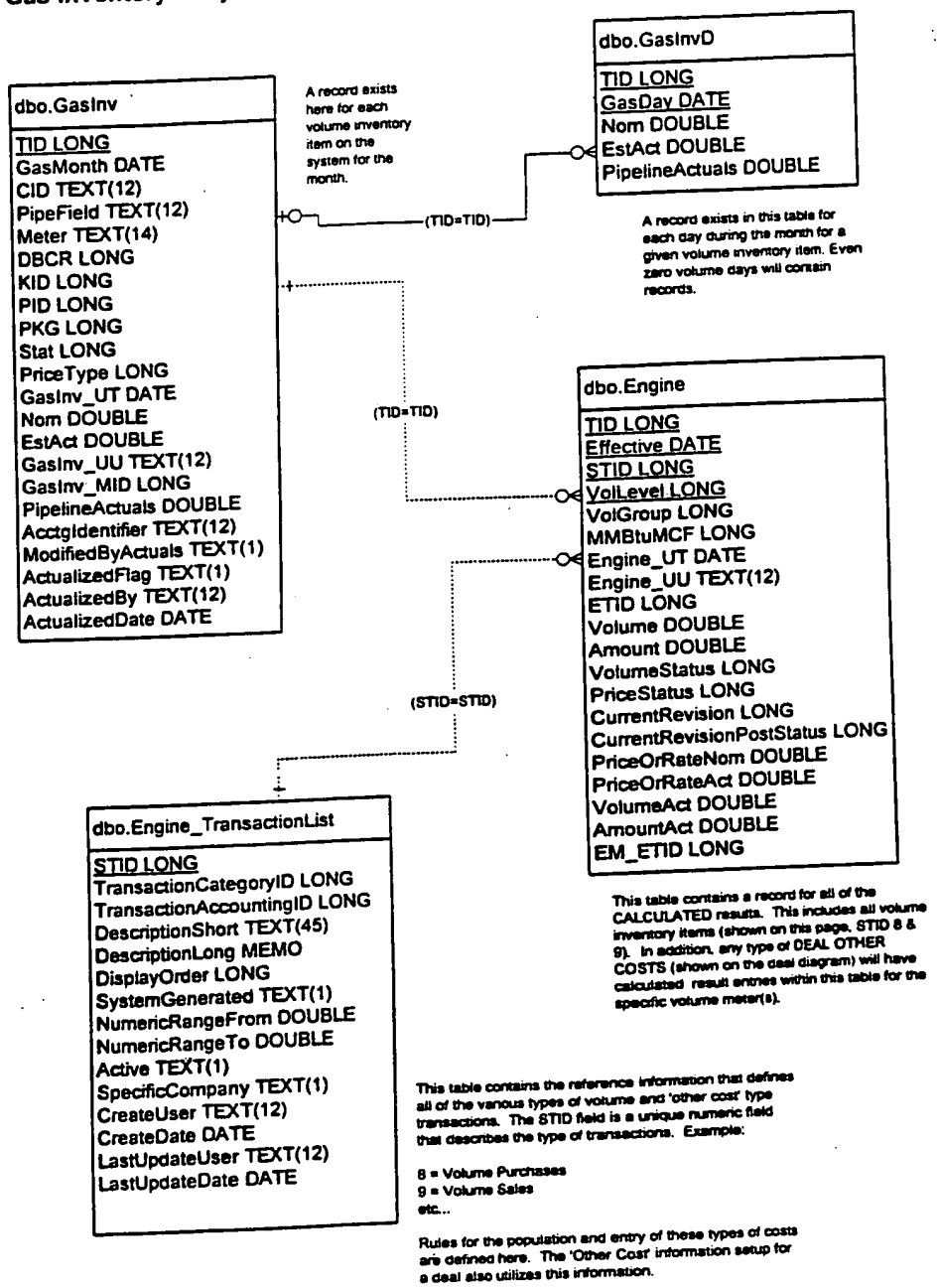

FIG. 3E

068.0003 - 4/20/05

Gas Inventory Subject Area (ERD) (2 of 2)

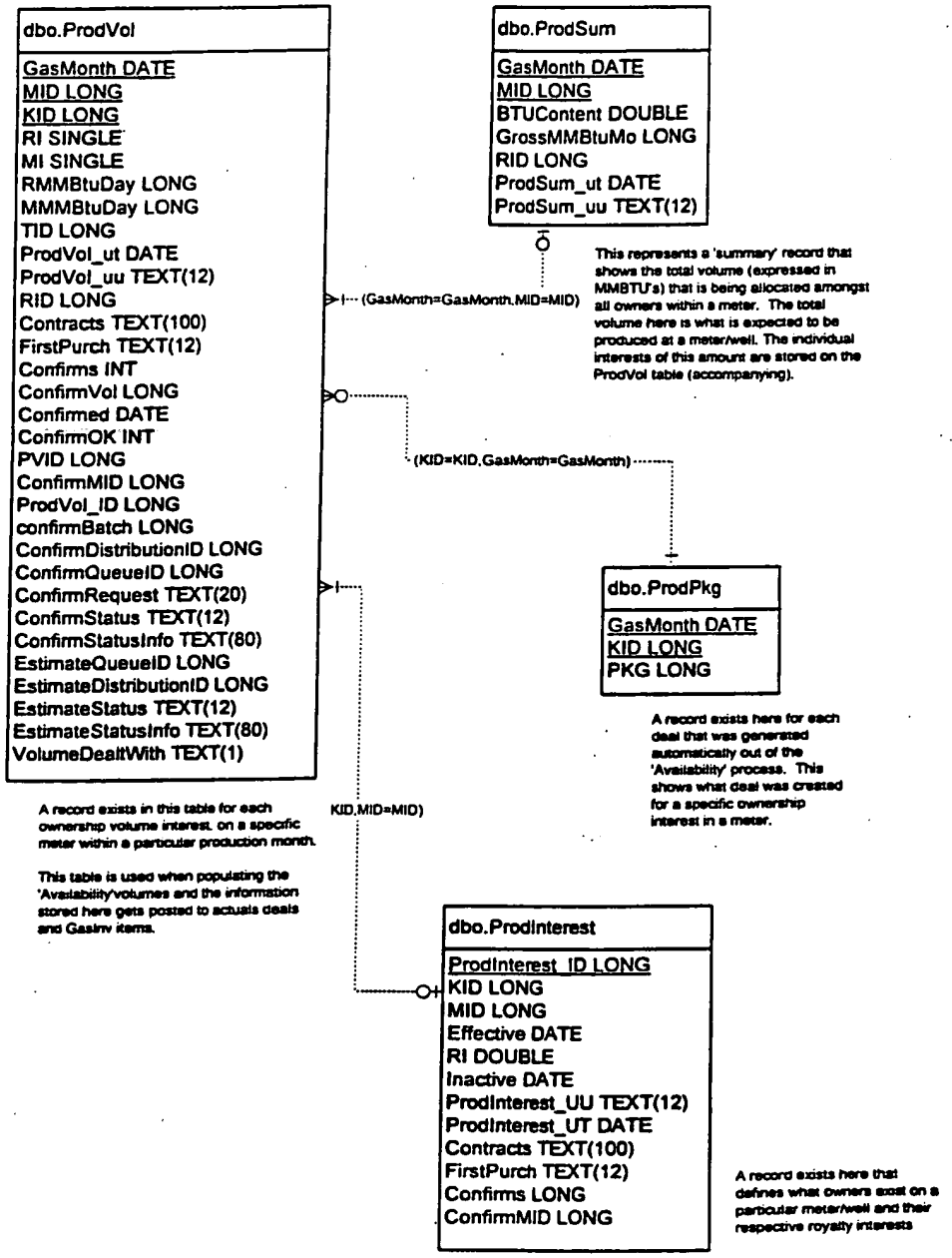

FIG. 3F

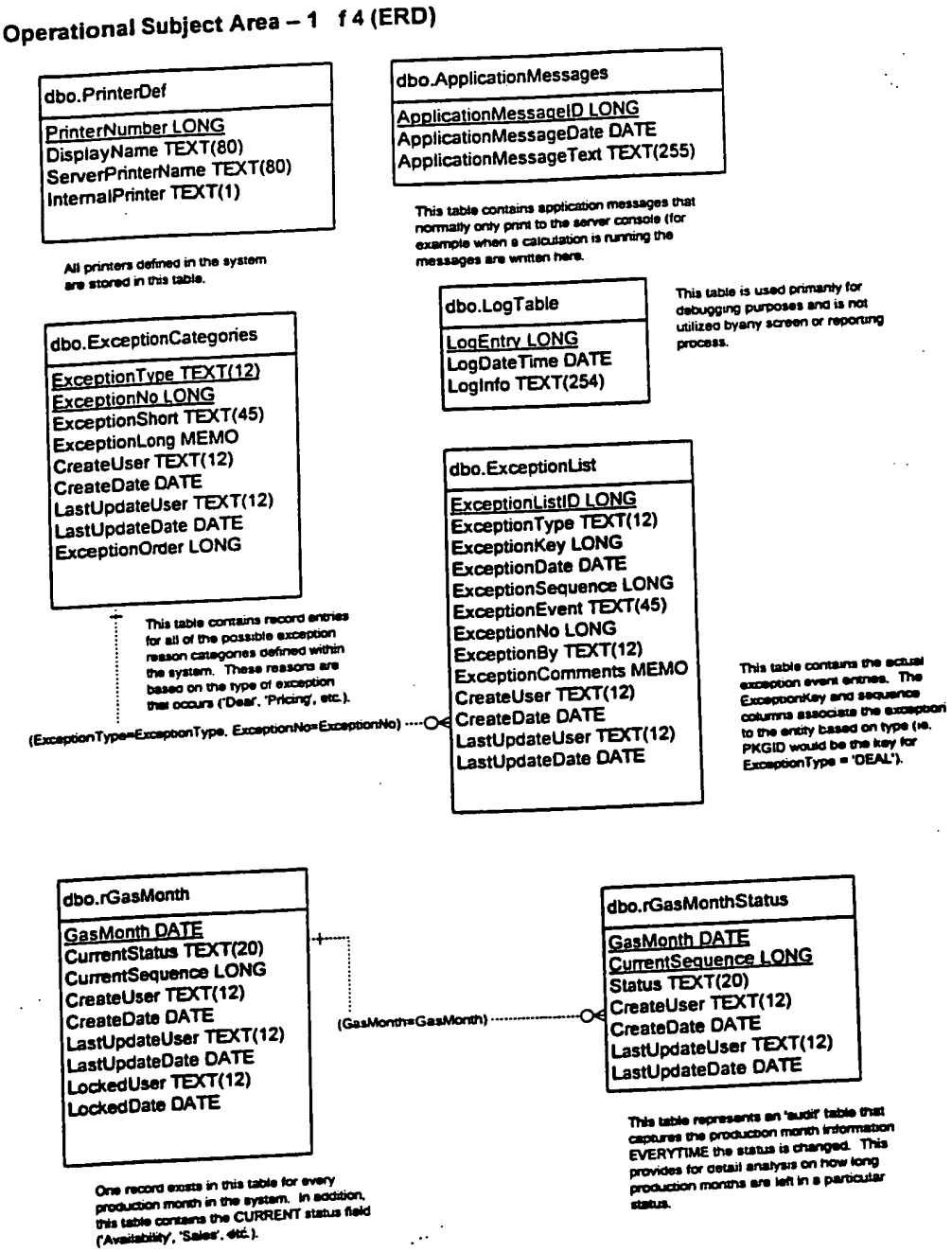
Operational Subject Area – 1 f 4 (ERD)
dbo.PrinterDef
PrinterNumber LONG
DisplayName TEXT(80)
ServerPrinterName TEXT(80)
InternalPrinter TEXT(1)
All printers defined in the system are stored in this table.
dbo.ApplicationMessages
ApplicationMessageID LONG
ApplicationMessageDate DATE
ApplicationMessageText TEXT(255)
This table contains application messages that normally only print to the server console (for example when a calculation is running the messages are written here.
dbo.LogTable
LogEntry LONG
LogDateTime DATE
LogInfo TEXT(254)
This table is used primarily for debugging purposes and is not utilized byany screen or reporting process.
dbo.ExceptionCategories
ExceptionType TEXT(12)
ExceptionNo LONG
ExceptionShort TEXT(45)
ExceptionLong MEMO
CreateUser TEXT(12)
CreateDate DATE
LastUpdateUser TEXT(12)
LastUpdateDate DATE
ExceptionOrder LONG
This table contains record entries for all of the possible exception reason categories defined within the system. These reasons are based on the type of exception that occurs ('Deal', 'Pricing', etc.).
(ExceptionType=ExceptionType, ExceptionNo=ExceptionNo)
dbo.ExceptionList
ExceptionListID LONG
ExceptionType TEXT(12)
ExceptionKey LONG
ExceptionDate DATE
ExceptionSequence LONG
ExceptionEvent TEXT(45)
ExceptionNo LONG
ExceptionBy TEXT(12)
ExceptionComments MEMO
CreateUser TEXT(12)
CreateDate DATE
LastUpdateUser TEXT(12)
LastUpdateDate DATE
This table contains the actual exception event entries. The ExceptionKey and sequence columns associate the exception to the entity based on type (ie. PKGID would be the key for ExceptionType = 'DEAL').
dbo.rGasMonth
GasMonth DATE
CurrentStatus TEXT(20)
CurrentSequence LONG
CreateUser TEXT(12)
CreateDate DATE
LastUpdateUser TEXT(12)
LastUpdateDate DATE
LockedUser TEXT(12)
LockedDate DATE
One record exists in this table for every production month in the system. In addition, this table contains the CURRENT status field ('Availability', 'Sales', etc.).
(GasMonth=GasMonth)
dbo.rGasMonthStatus
GasMonth DATE
CurrentSequence LONG
Status TEXT(20)
CreateUser TEXT(12)
CreateDate DATE
LastUpdateUser TEXT(12)
LastUpdateDate DATE
This table represents an 'audit' table that captures the production month information EVERYTIME the status is changed. This provides for detail analysis on how long production months are left in a particular status.

FIG. 3G

Operational Subject Area – 2 of 4 (ERD)

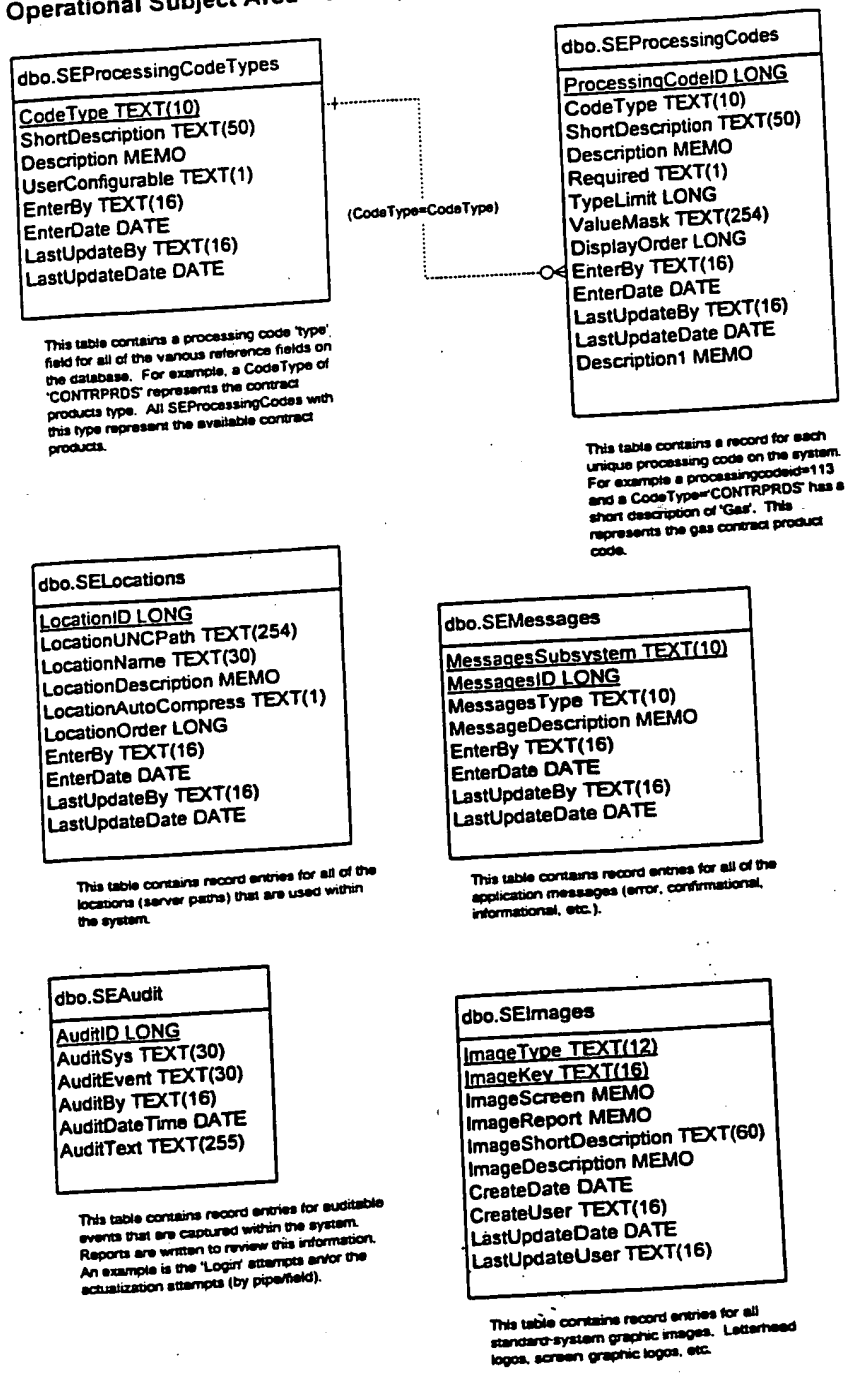

FIG. 3H

Operational Subject Area – 3 of 4 (ERD)

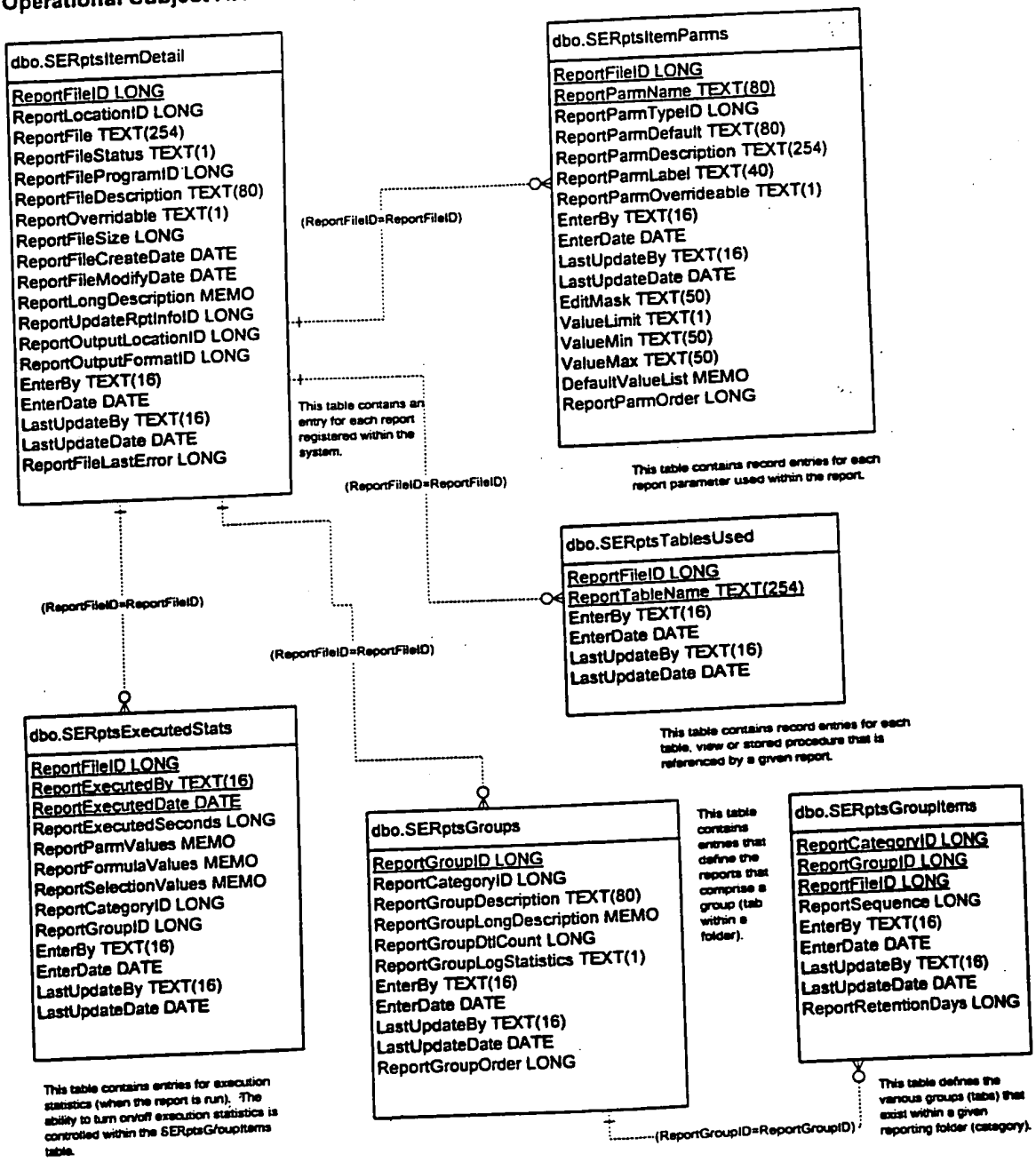

FIG. 3I

Operational Subject Area – 4 of 4 (ERD)

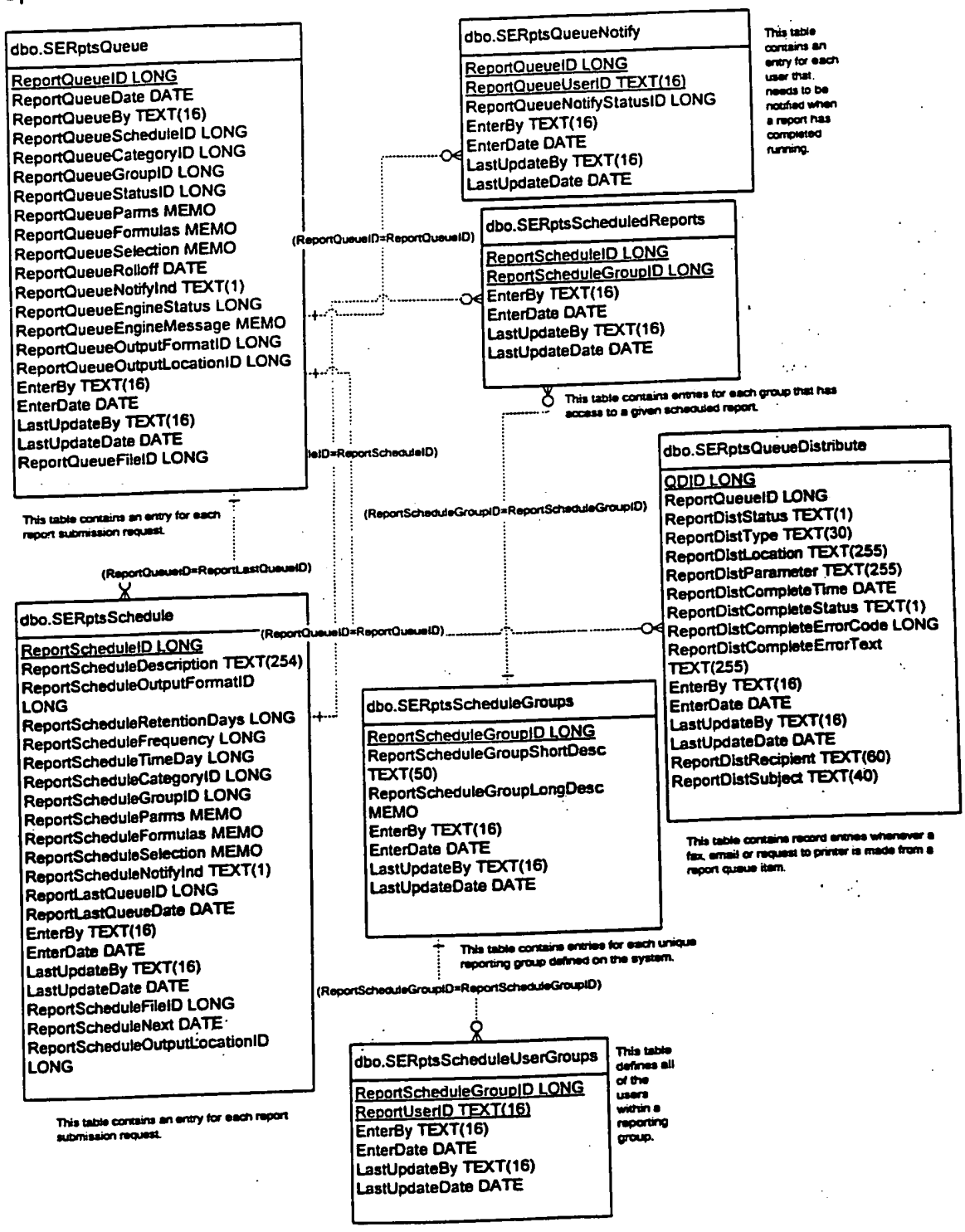

FIG. 3J

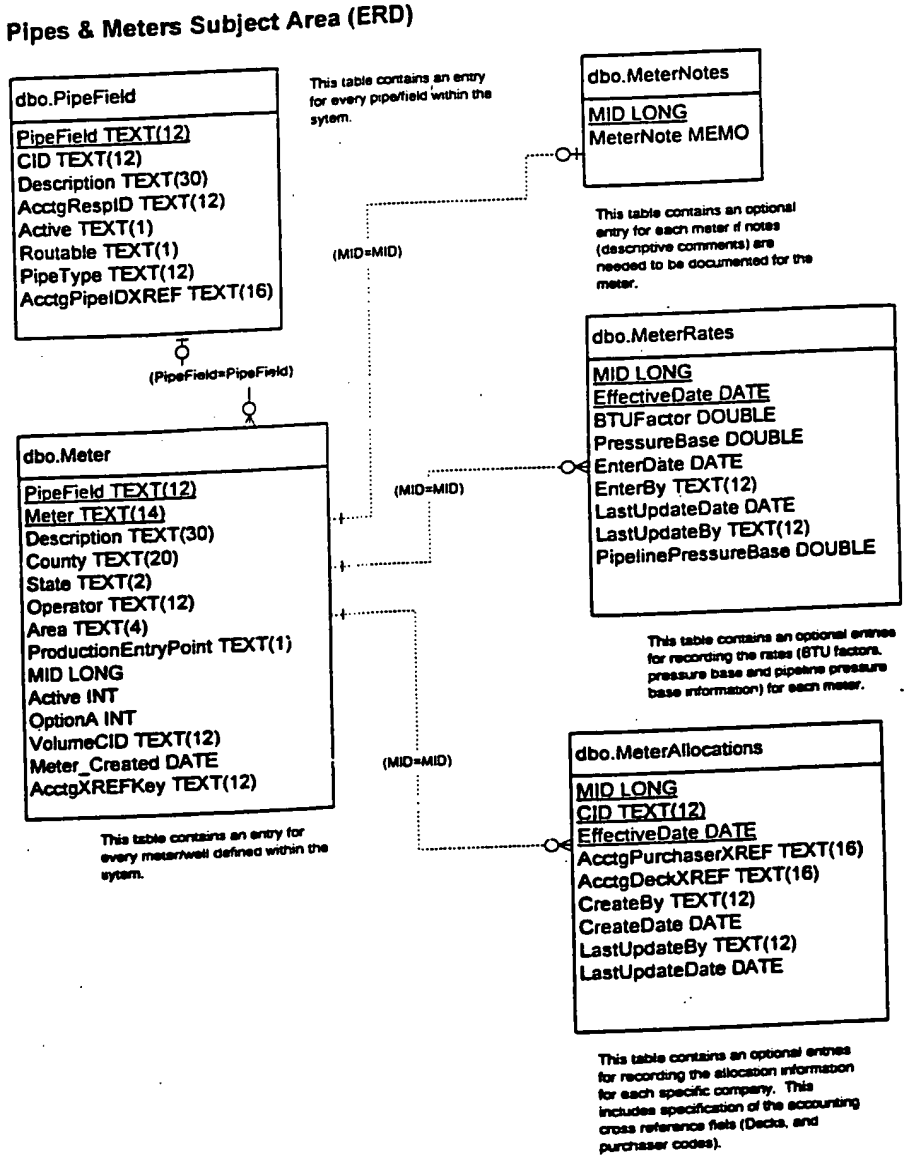
Pipes & Meters Subject Area (ERD)
dbo.PipeField
PipeField TEXT(12)
CID TEXT(12)
Description TEXT(30)
AcctgRespID TEXT(12)
Active TEXT(1)
Routable TEXT(1)
PipeType TEXT(12)
AcctgPipeIDXREF TEXT(16)
This table contains an entry for every pipefield within the sytem.
dbo.MeterNotes
MID LONG
MeterNote MEMO
This table contains an optional entry for each meter if notes (descriptive comments) are needed to be documented for the meter.
(MID=MID)
(PipeField=PipeField)
dbo.Meter
PipeField TEXT(12)
Meter TEXT(14)
Description TEXT(30)
County TEXT(20)
State TEXT(2)
Operator TEXT(12)
Area TEXT(4)
ProductionEntryPoint TEXT(1)
MID LONG
Active INT
OptionA INT
VolumeCID TEXT(12)
Meter_Created DATE
AcctgXREFKey TEXT(12)
This table contains an entry for every meter/well defined within the sytem.
(MID=MID)
dbo.MeterRates
MID LONG
EffectiveDate DATE
BTUFactor DOUBLE
PressureBase DOUBLE
EnterDate DATE
EnterBy TEXT(12)
LastUpdateDate DATE
LastUpdateBy TEXT(12)
PipelinePressureBase DOUBLE
This table contains an optional entries for recording the rates (BTU factors, pressure base and pipeline pressure base information) for each meter.
(MID=MID)
dbo.MeterAllocations
MID LONG
CID TEXT(12)
EffectiveDate DATE
AcctgPurchaserXREF TEXT(16)
AcctgDeckXREF TEXT(16)
CreateBy TEXT(12)
CreateDate DATE
LastUpdateBy TEXT(12)
LastUpdateDate DATE
This table contains an optional entries for recording the allocation information for each specific company. This includes specification of the accounting cross reference fiels (Decks, and purchaser codes).

FIG. 3K

EXPRESS MAIL NO. EV 339 950 745 US

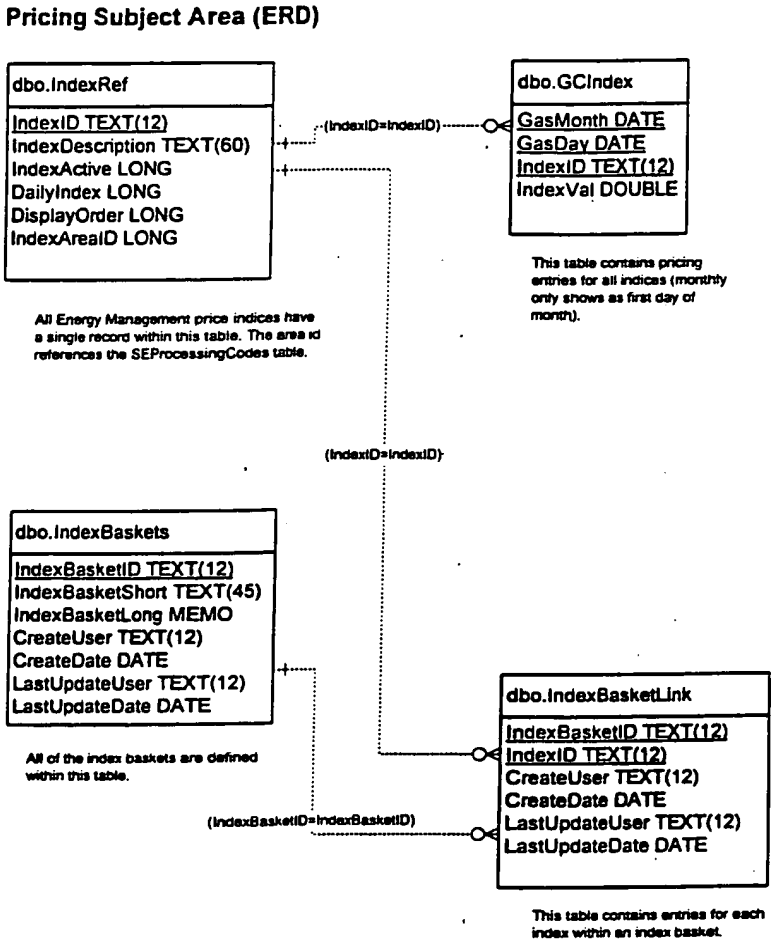

FIG. 3L

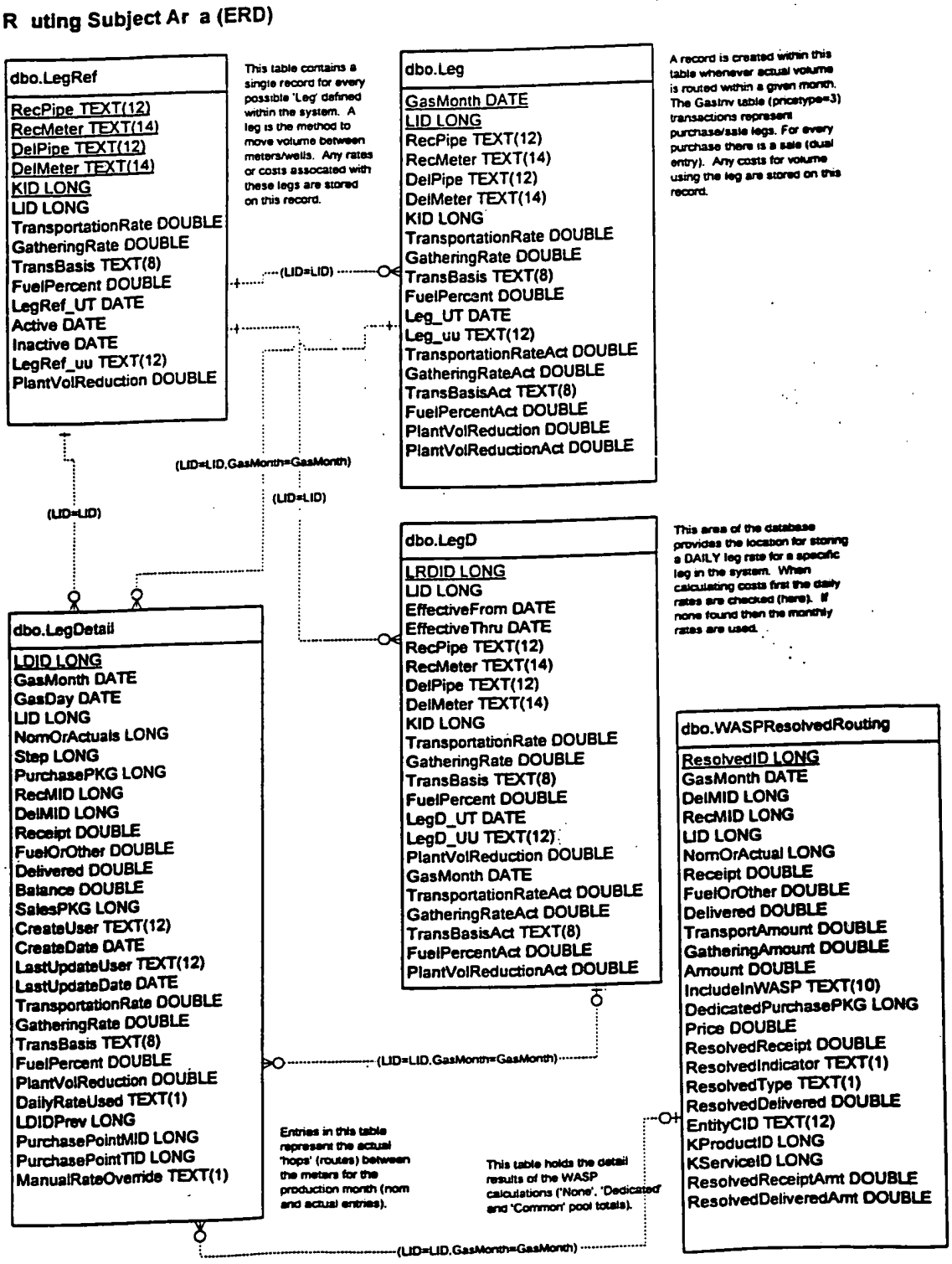
R uting Subject Ar a (ERD)
dbo.LegRef
RecPipe TEXT(12)
RecMeter TEXT(14)
DelPipe TEXT(12)
DelMeter TEXT(14)
KID LONG
LID LONG
TransportationRate DOUBLE
GatheringRate DOUBLE
TransBasis TEXT(8)
FuelPercent DOUBLE
LegRef_UT DATE
Active DATE
Inactive DATE
LegRef_uu TEXT(12)
PlantVolReduction DOUBLE
This table contains a single record for every possible 'Leg' defined within the system. A leg is the method to move volume between meters/wells. Any rates or costs associated with these legs are stored on this record.
dbo.Leg
GasMonth DATE
LID LONG
RecPipe TEXT(12)
RecMeter TEXT(14)
DelPipe TEXT(12)
DelMeter TEXT(14)
KID LONG
TransportationRate DOUBLE
GatheringRate DOUBLE
TransBasis TEXT(8)
FuelPercent DOUBLE
Leg_UT DATE
Leg_uu TEXT(12)
TransportationRateAct DOUBLE
GatheringRateAct DOUBLE
TransBasisAct TEXT(8)
FuelPercentAct DOUBLE
PlantVolReduction DOUBLE
PlantVolReductionAct DOUBLE
A record is created within this table whenever actual volume is routed within a given month. The GasInv table (pricetype=3) transactions represent purchase/sale legs. For every purchase there is a sale (dual entry). Any costs for volume using the leg are stored on this record.
(LID=LID)
(LID=LID.GasMonth=GasMonth)
(LID=LID)
(LID=LID)
dbo.LegD
LRDID LONG
LID LONG
EffectiveFrom DATE
EffectiveThru DATE
RecPipe TEXT(12)
RecMeter TEXT(14)
DelPipe TEXT(12)
DelMeter TEXT(14)
KID LONG
TransportationRate DOUBLE
GatheringRate DOUBLE
TransBasis TEXT(8)
FuelPercent DOUBLE
LegD_UT DATE
LegD_UU TEXT(12)
PlantVolReduction DOUBLE
GasMonth DATE
TransportationRateAct DOUBLE
GatheringRateAct DOUBLE
TransBasisAct TEXT(8)
FuelPercentAct DOUBLE
PlantVolReductionAct DOUBLE
This area of the database provides the location for storing a DAILY leg rate for a specific leg in the system. When calculating costs first the daily rates are checked (here). If none found then the monthly rates are used.
dbo.LegDetail
LDID LONG
GasMonth DATE
GasDay DATE
LID LONG
NomOrActuals LONG
Step LONG
PurchasePKG LONG
RecMID LONG
DelMID LONG
Receipt DOUBLE
FuelOrOther DOUBLE
Delivered DOUBLE
Balance DOUBLE
SalesPKG LONG
CreateUser TEXT(12)
CreateDate DATE
LastUpdateUser TEXT(12)
LastUpdateDate DATE
TransportationRate DOUBLE
GatheringRate DOUBLE
TransBasis TEXT(8)
FuelPercent DOUBLE
PlantVolReduction DOUBLE
DailyRateUsed TEXT(1)
LDIDPrev LONG
PurchasePointMID LONG
PurchasePointTID LONG
ManualRateOverride TEXT(1)
(LID=LID.GasMonth=GasMonth)
Entries in this table represent the actual 'hops' (routes) between the meters for the production month (nom and actual entries).
dbo.WASPResolvedRouting
ResolvedID LONG
GasMonth DATE
DelMID LONG
RecMID LONG
LID LONG
NomOrActual LONG
Receipt DOUBLE
FuelOrOther DOUBLE
Delivered DOUBLE
TransportAmount DOUBLE
GatheringAmount DOUBLE
Amount DOUBLE
IncludeInWASP TEXT(10)
DedicatedPurchasePKG LONG
Price DOUBLE
ResolvedReceipt DOUBLE
ResolvedIndicator TEXT(1)
ResolvedType TEXT(1)
ResolvedDelivered DOUBLE
EntityCID TEXT(12)
KProductID LONG
KServiceID LONG
ResolvedReceiptAmt DOUBLE
ResolvedDeliveredAmt DOUBLE
This table holds the detail results of the WASP calculations ('None', 'Dedicated' and 'Common' pool totals).
(LID=LID.GasMonth=GasMonth)

FIG. 3M

068.0003

Security Subject Area (ERD)

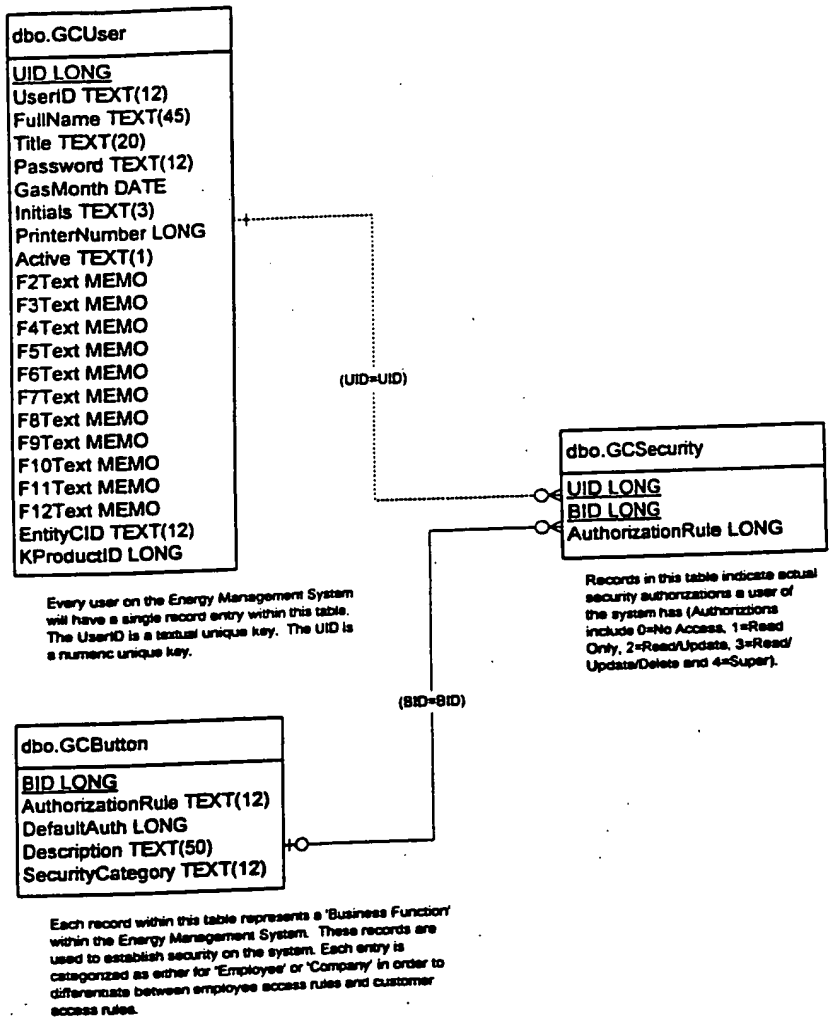

FIG. 3N

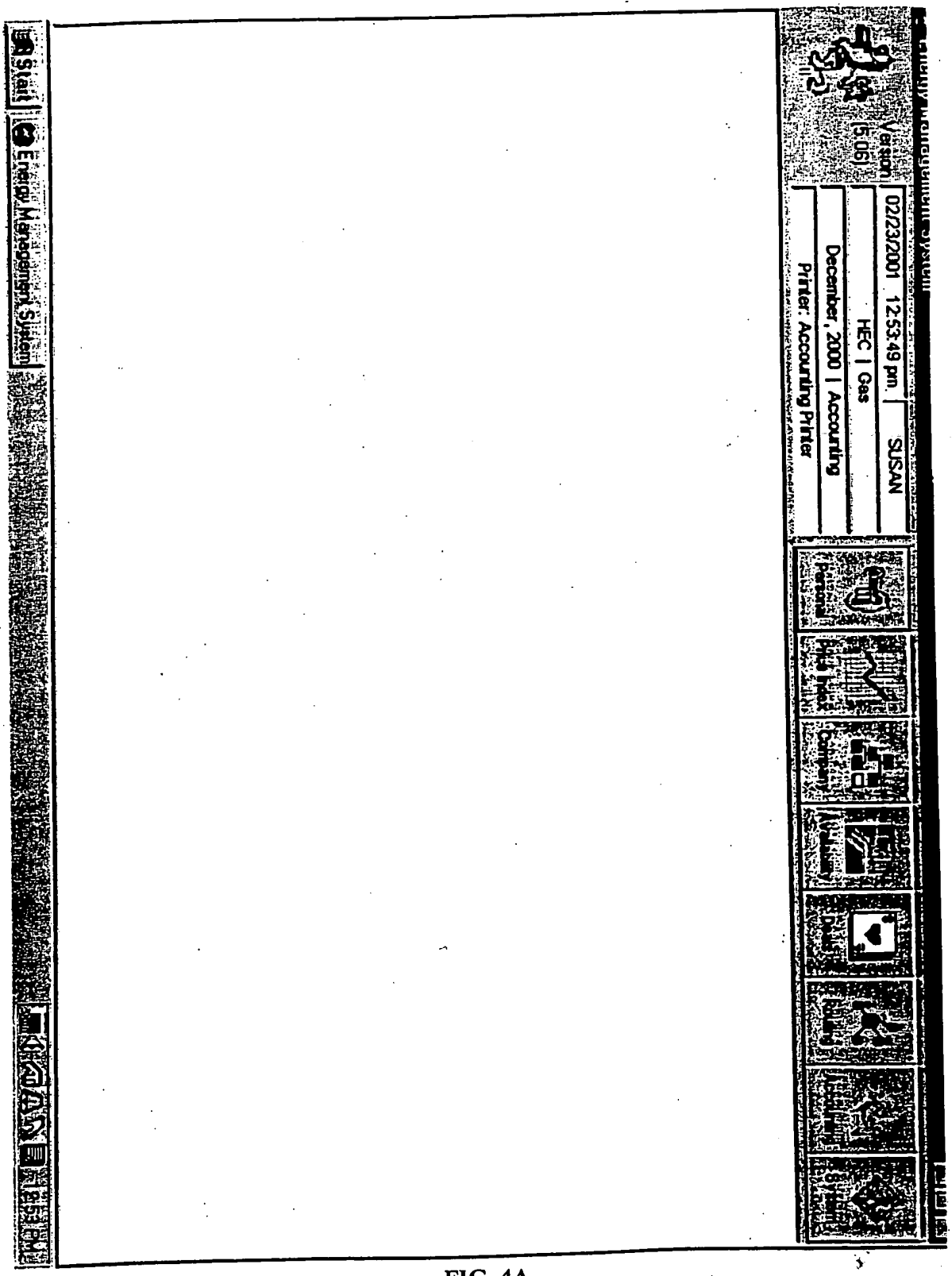

FIG. 4A

09895011-122501

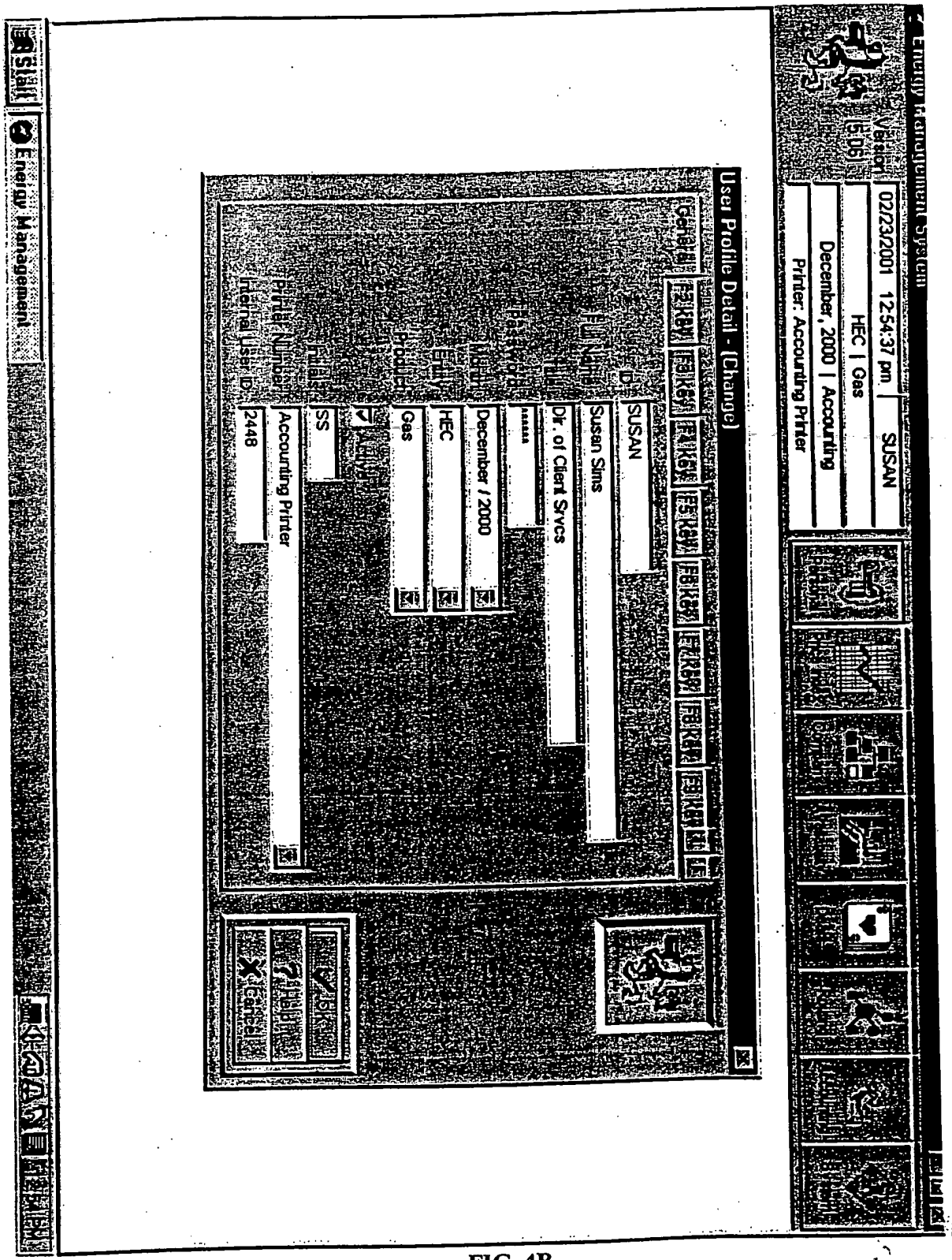

FIG. 4B

09895011 - 123104

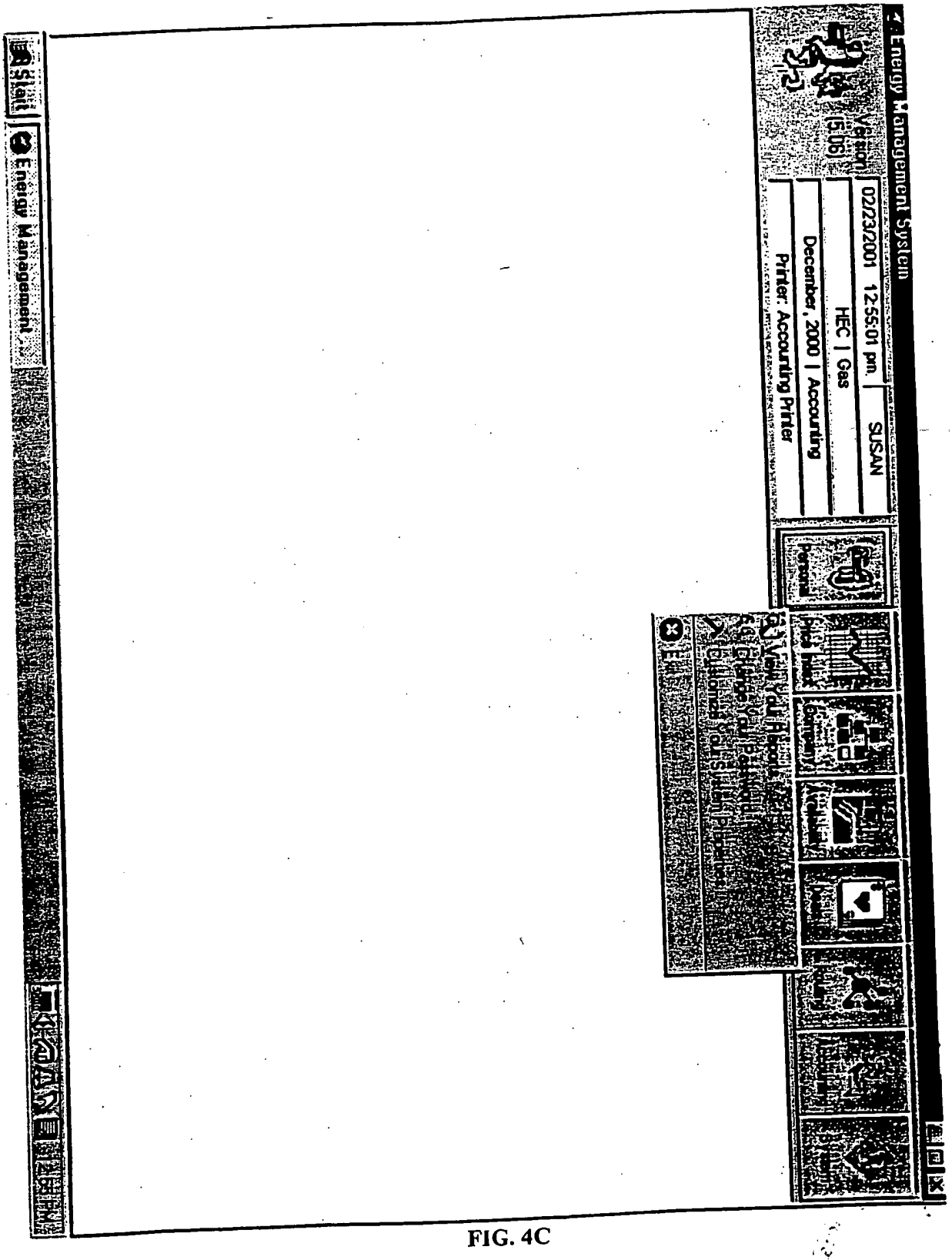

FIG. 4C

09895011 062801

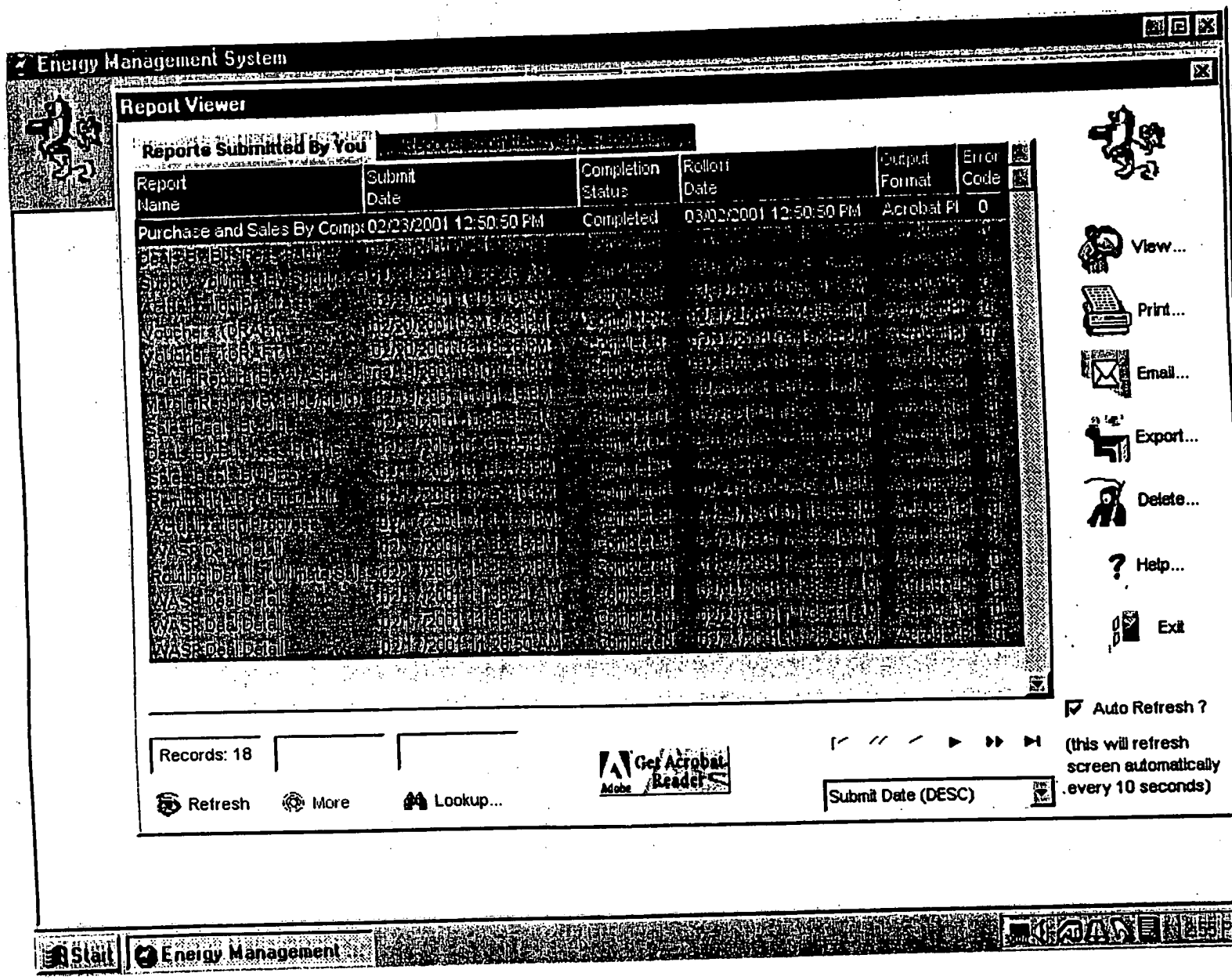
Energy Management System
Report Viewer
Reports Submitted By You
Report Name
Submit Date
Completion Status
Rollout Date
Output Format
Error Code
Purchase and Sales By Comp
02/23/2001 12:50:50 PM
Completed
03/02/2001 12:50:50 PM
Acrobat Pl
0
View...
Print...
Email...
Export...
Delete...
Help...
Exit
Auto Refresh ?
(this will refresh screen automatically every 10 seconds)
Records: 18
Refresh
More
Lookup...
Get Acrobat Reader
Submit Date (DESC)
Start
Energy Management

FIG. 4D

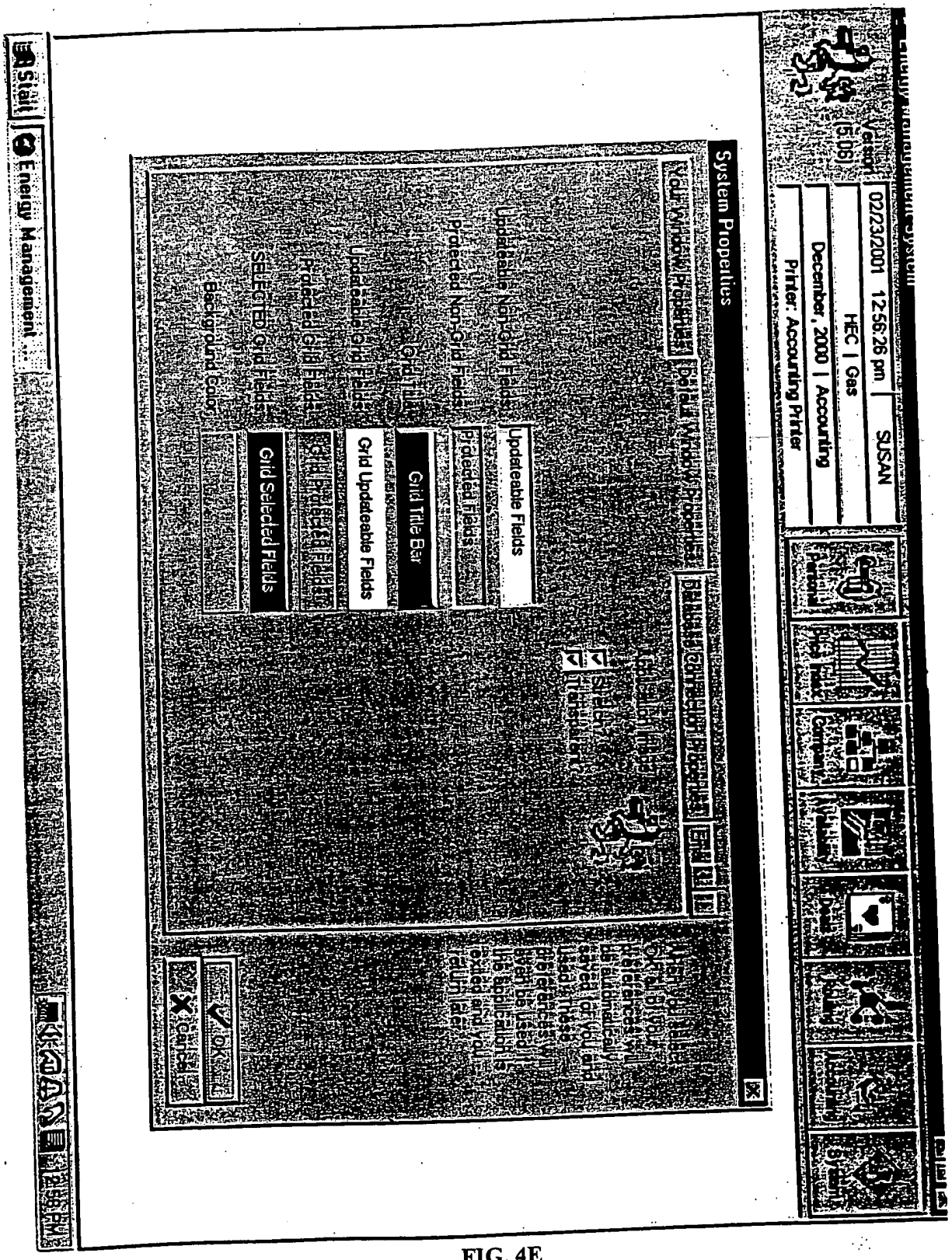

FIG. 4E

09895011-062801

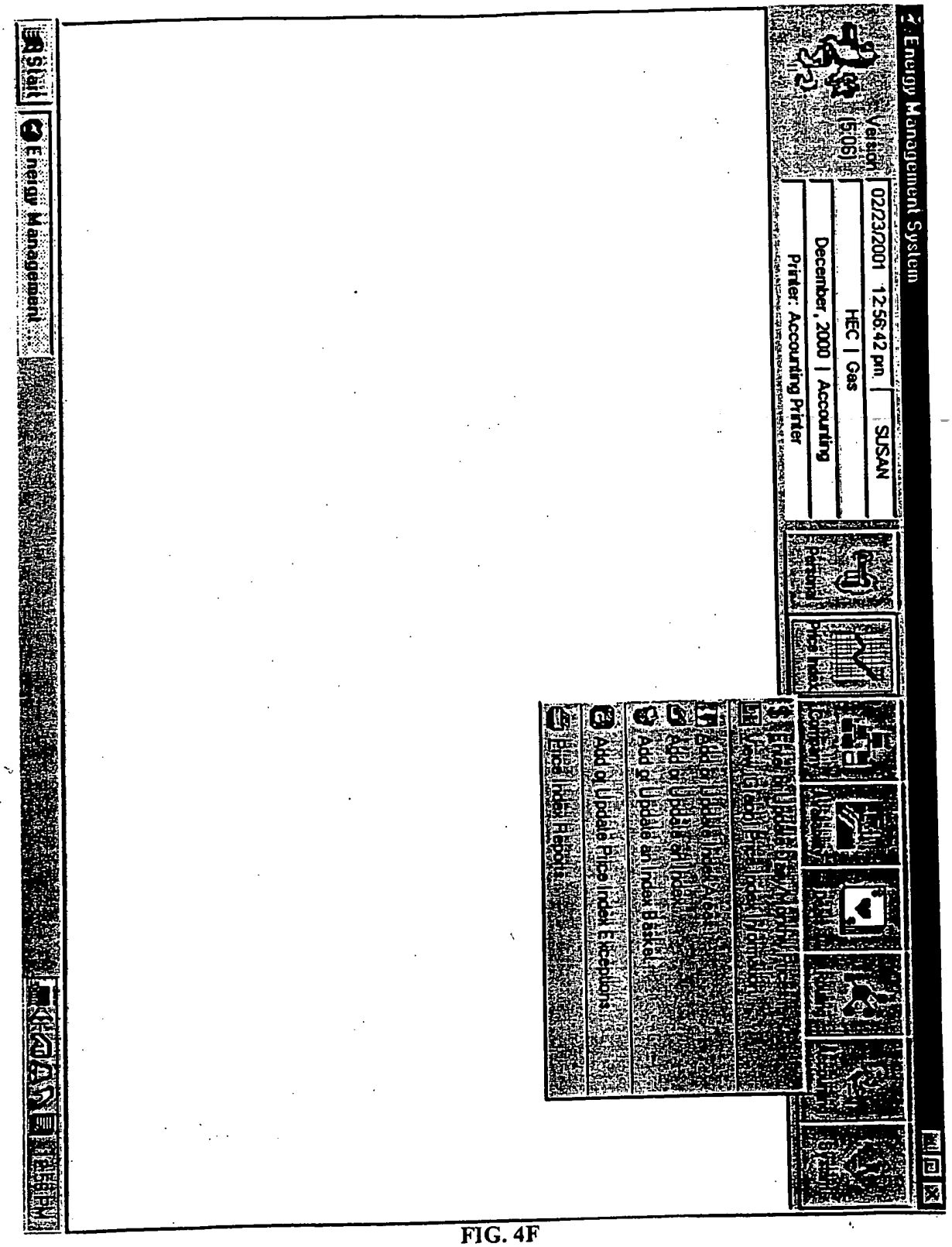

FIG. 4F

09895011 - 062801

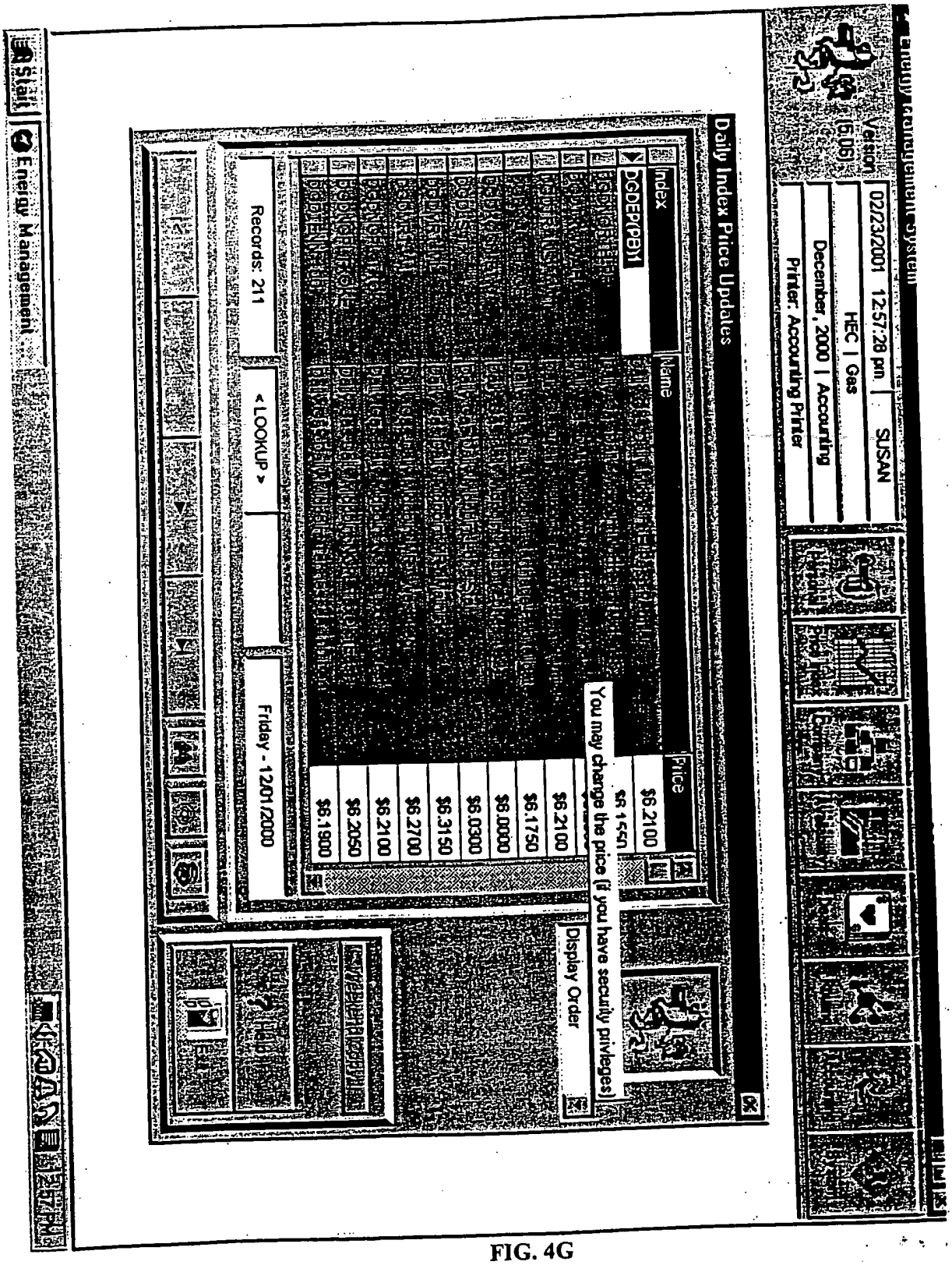

FIG. 4G

09895011-123101

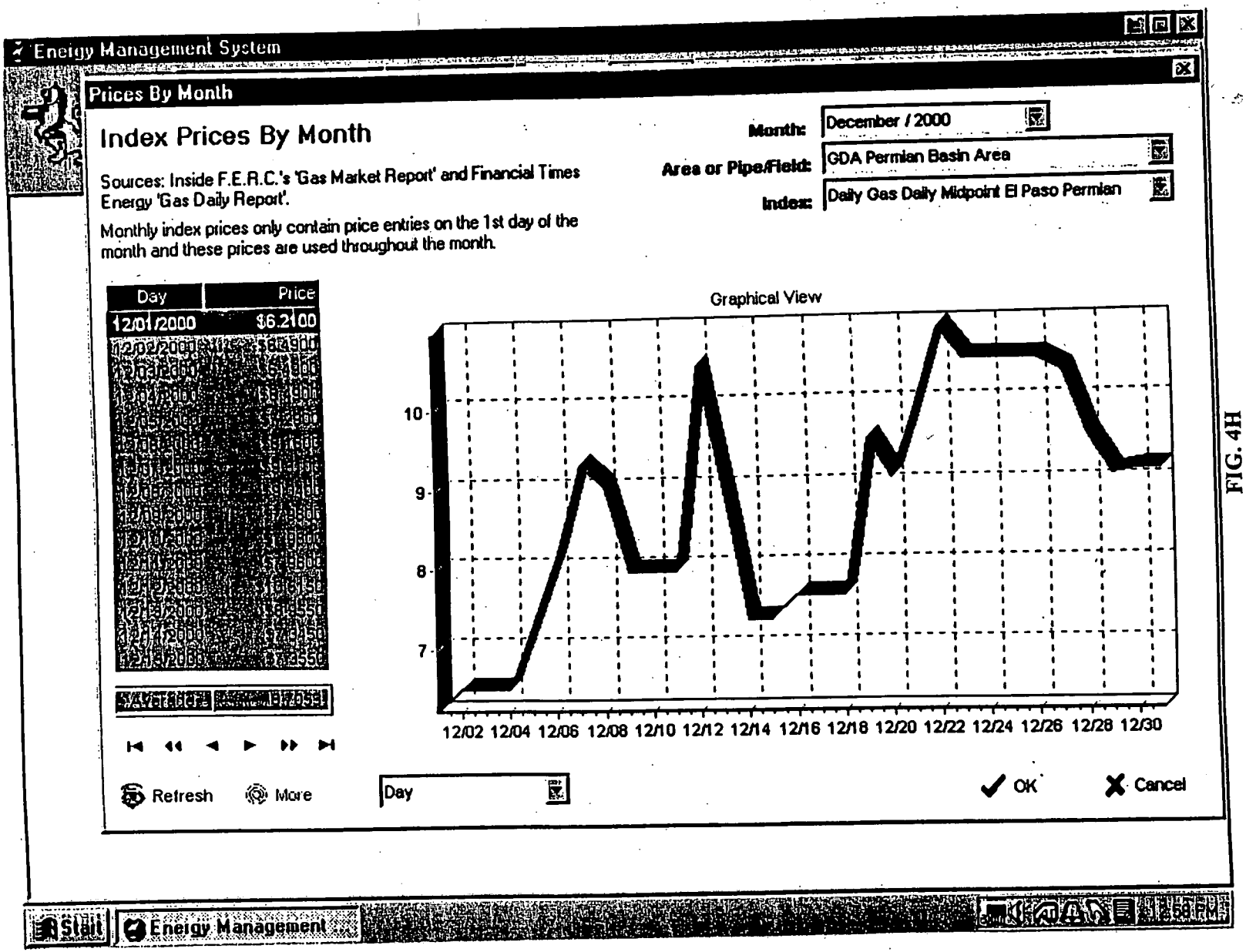
Energy Management System
Prices By Month
Index Prices By Month
Sources: Inside F.E.R.C.'s 'Gas Market Report' and Financial Times Energy 'Gas Daily Report'.
Monthly index prices only contain price entries on the 1st day of the month and these prices are used throughout the month.
Month: December / 2000
Area or Pipe/Field: GDA Permian Basin Area
Index: Daily Gas Daily Midpoint El Paso Permian
Day
Price
12/01/2000 $6.2100
Graphical View
10
9
8
7
12/02 12/04 12/06 12/08 12/10 12/12 12/14 12/16 12/18 12/20 12/22 12/24 12/26 12/28 12/30
Refresh
More
Day
OK
Cancel
Start
Energy Management

FIG. 4H

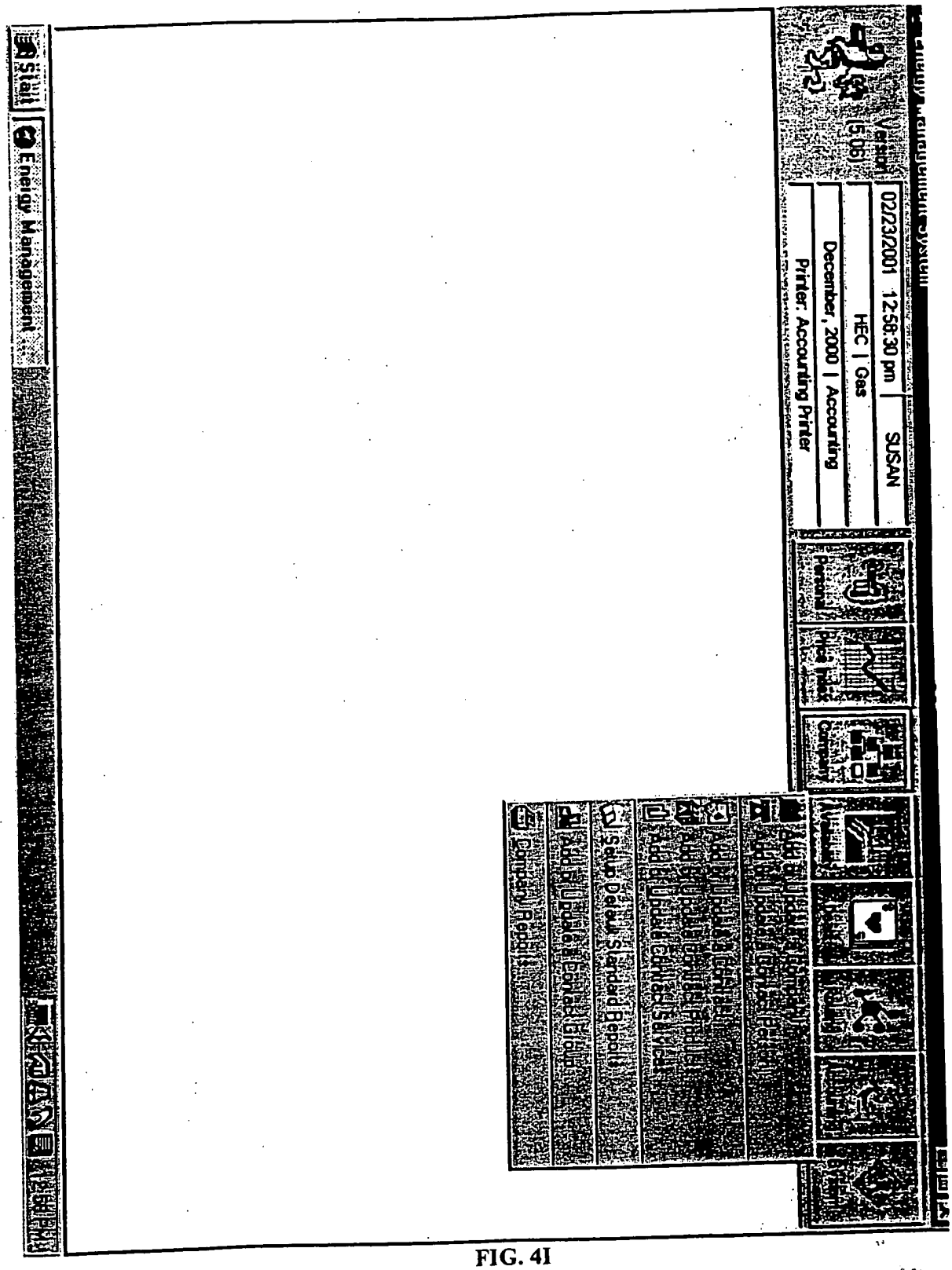

FIG. 4I

09895011 062801

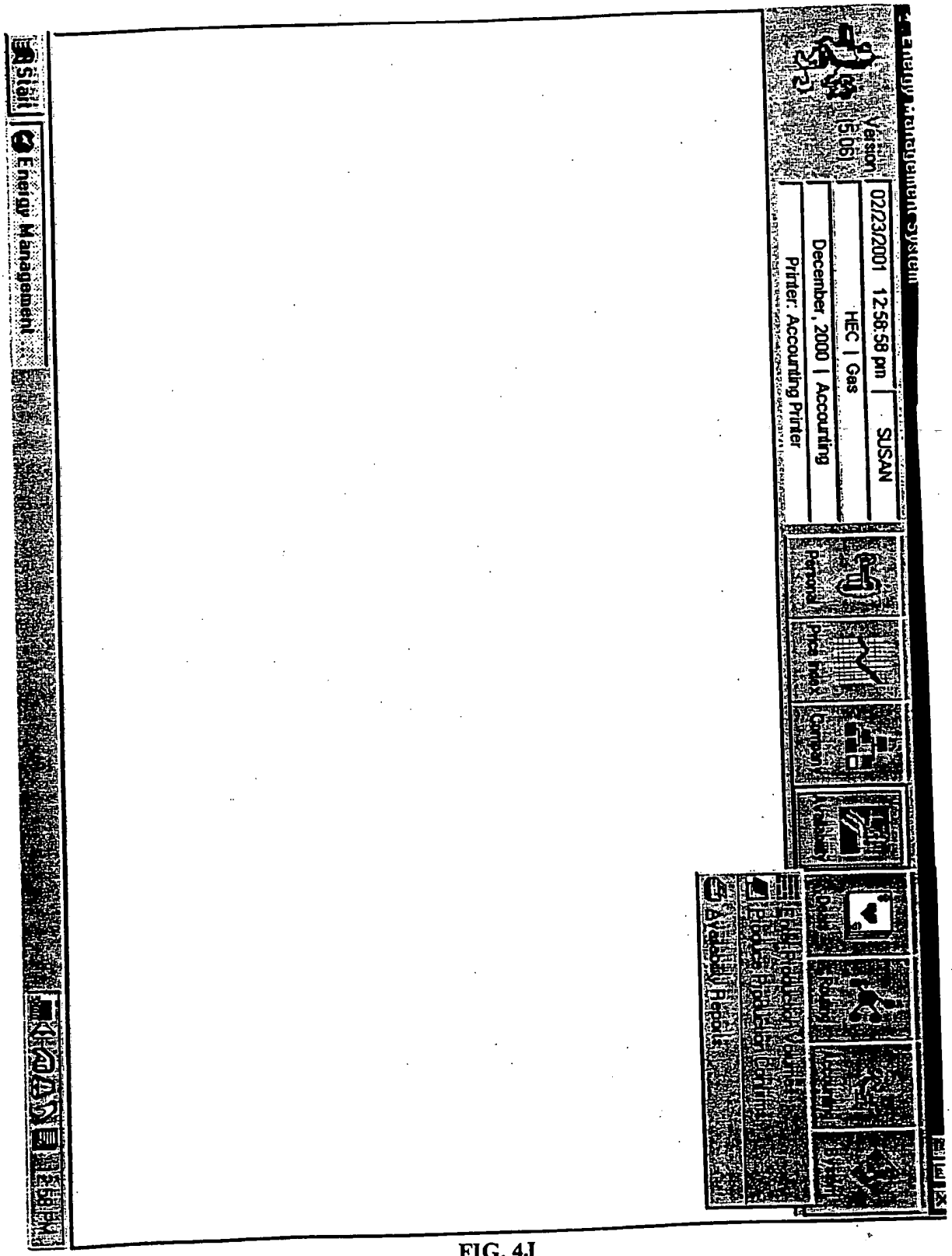

FIG. 4J

09895011 062801

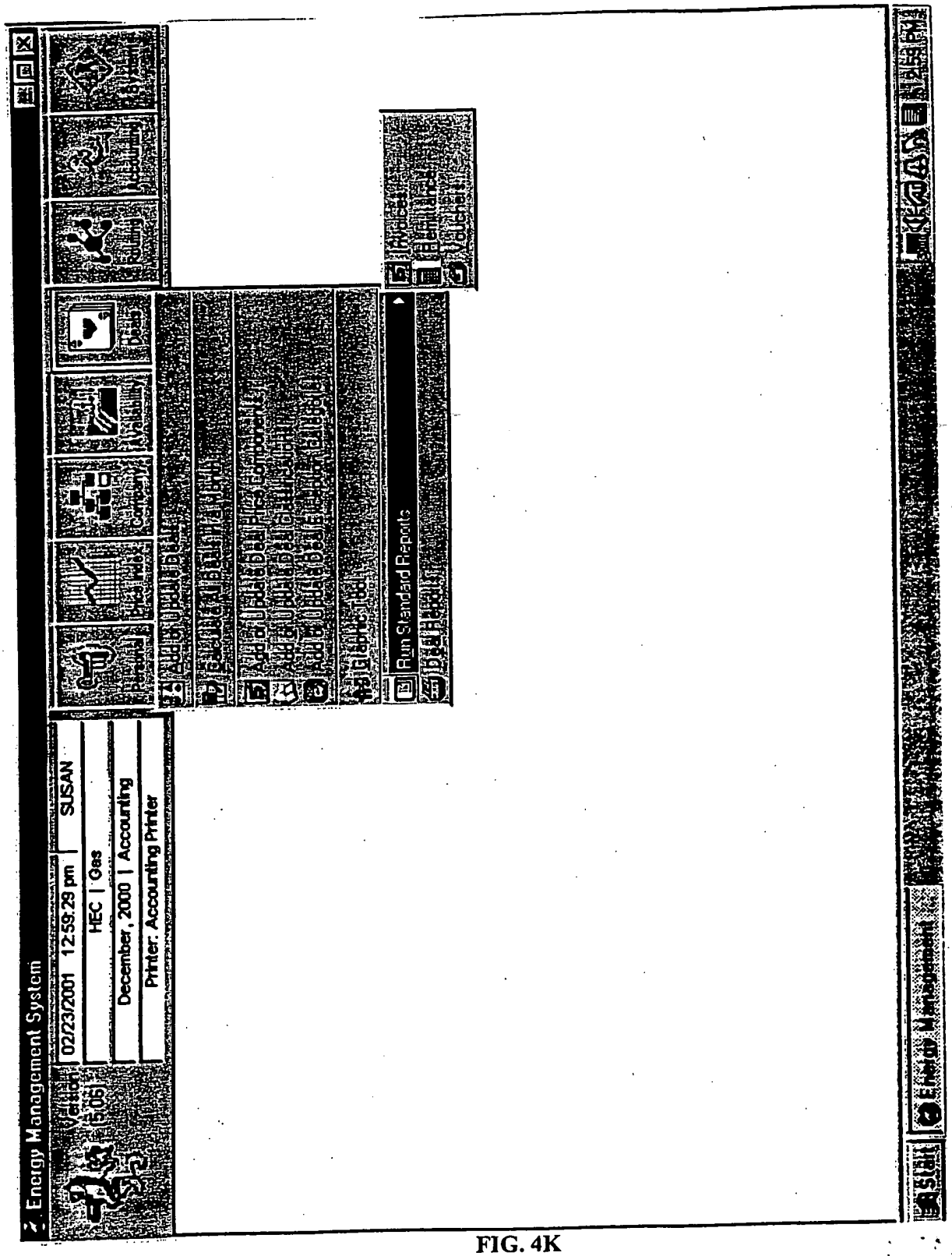
Energy Management System
Version 5.05
02/23/2001 12:59:29 pm
SUSAN
HEC | Gas
December, 2000 | Accounting
Printer: Accounting Printer
Run Standard Reports

FIG. 4K

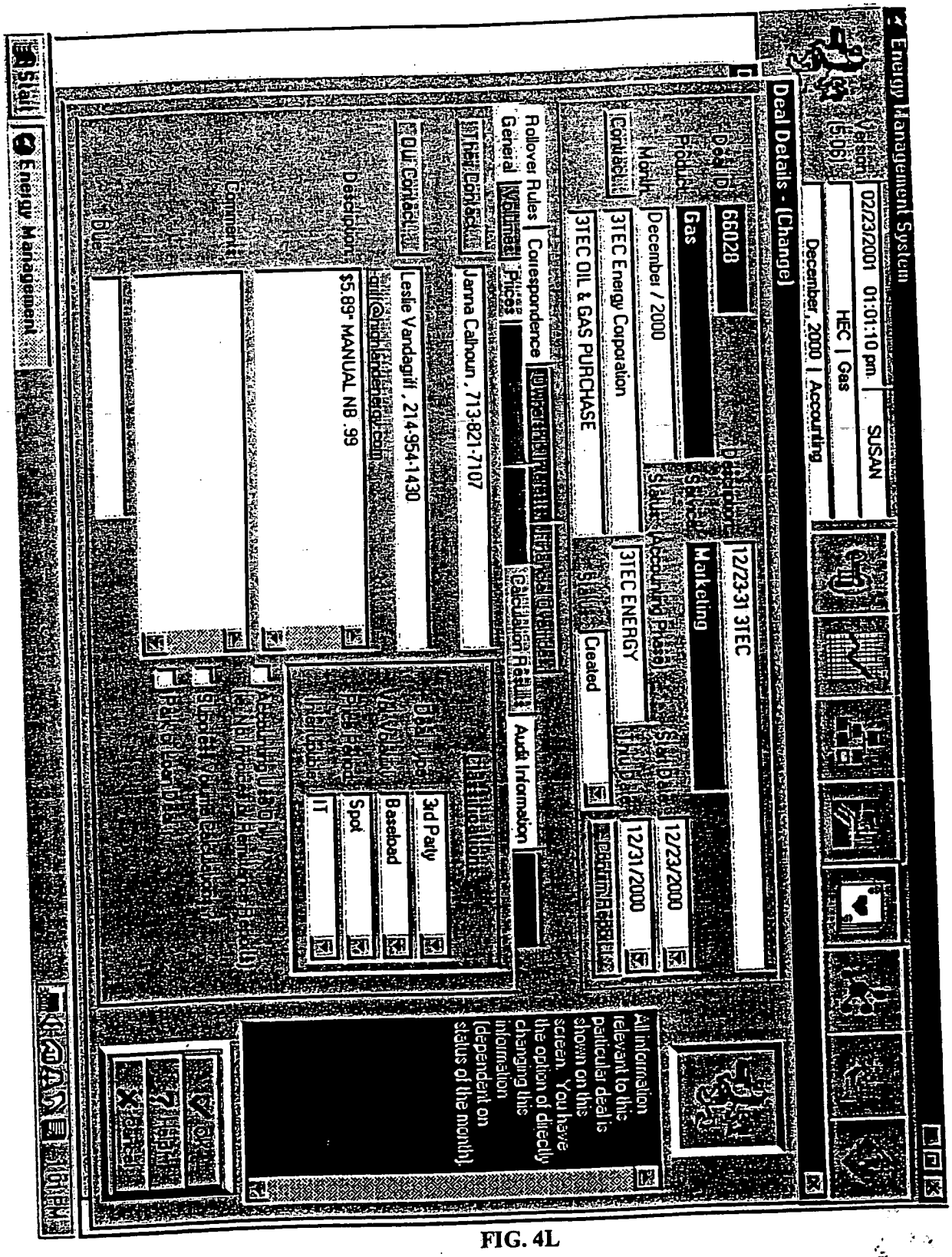
Energy Management System
Deal Details - [Change]
Deal ID 66028
Product Gas
Month December / 2000
Contract 3TEC Energy Corporation
3TEC OIL & GAS PURCHASE
Status Created
Marketing
12/23-31 3TEC
12/23/2000
12/31/2000
3TEC ENERGY
Rollover Rules
Correspondence
General
Prices
Calculation Results
Audit Information
Comments
Description
$5.89* MANUAL NB .99
Janna Calhoun , 713-821-7107
Leslie Vandagriff , 214-954-1430
3rd Party
Baseload
Spot
IT
All information relevant to this particular deal is shown on this screen. You have the option of directly changing this information (dependent on status of the month).
Start
Energy Management

FIG. 4L

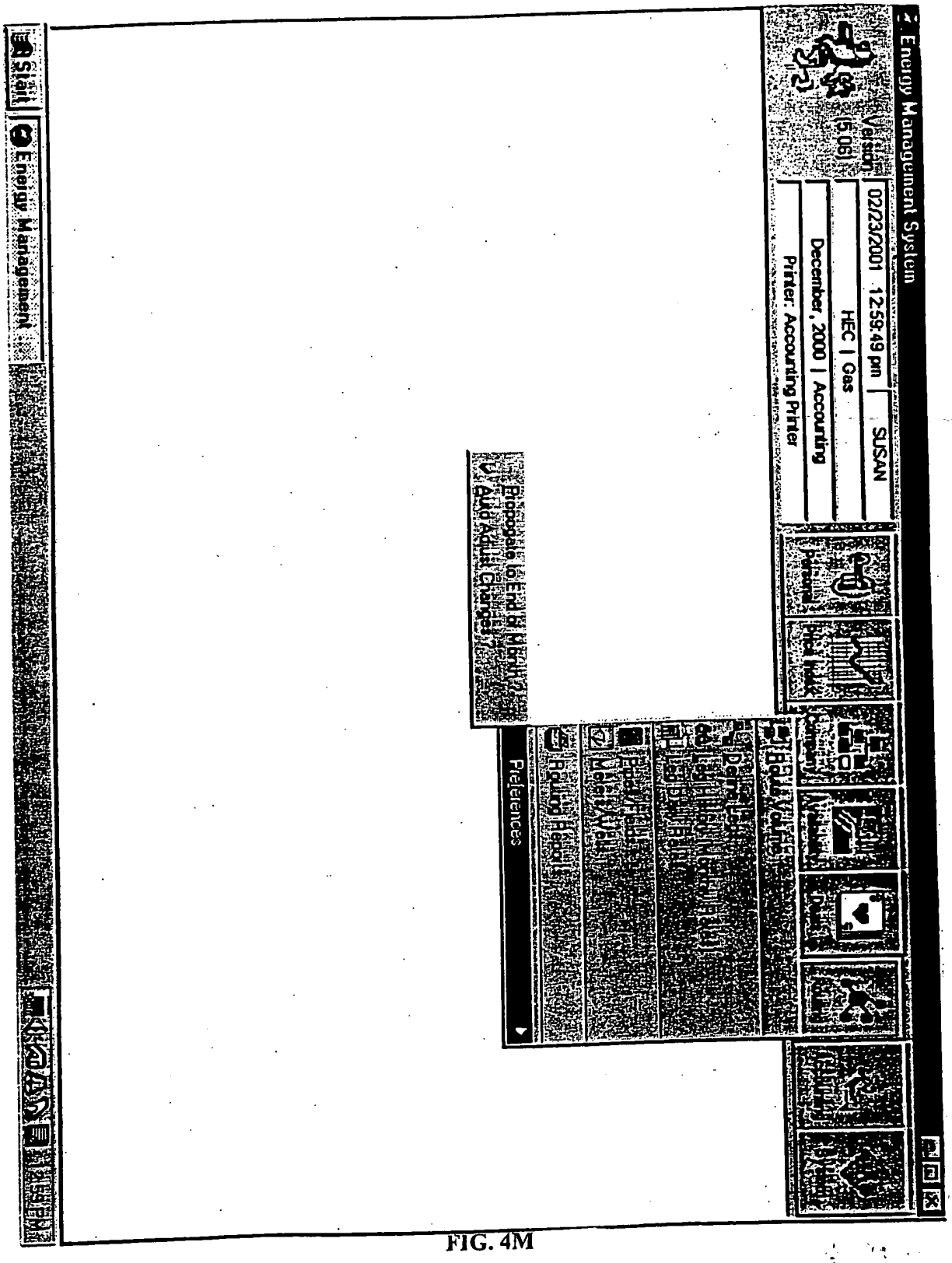

FIG. 4M

09895011 - 062801

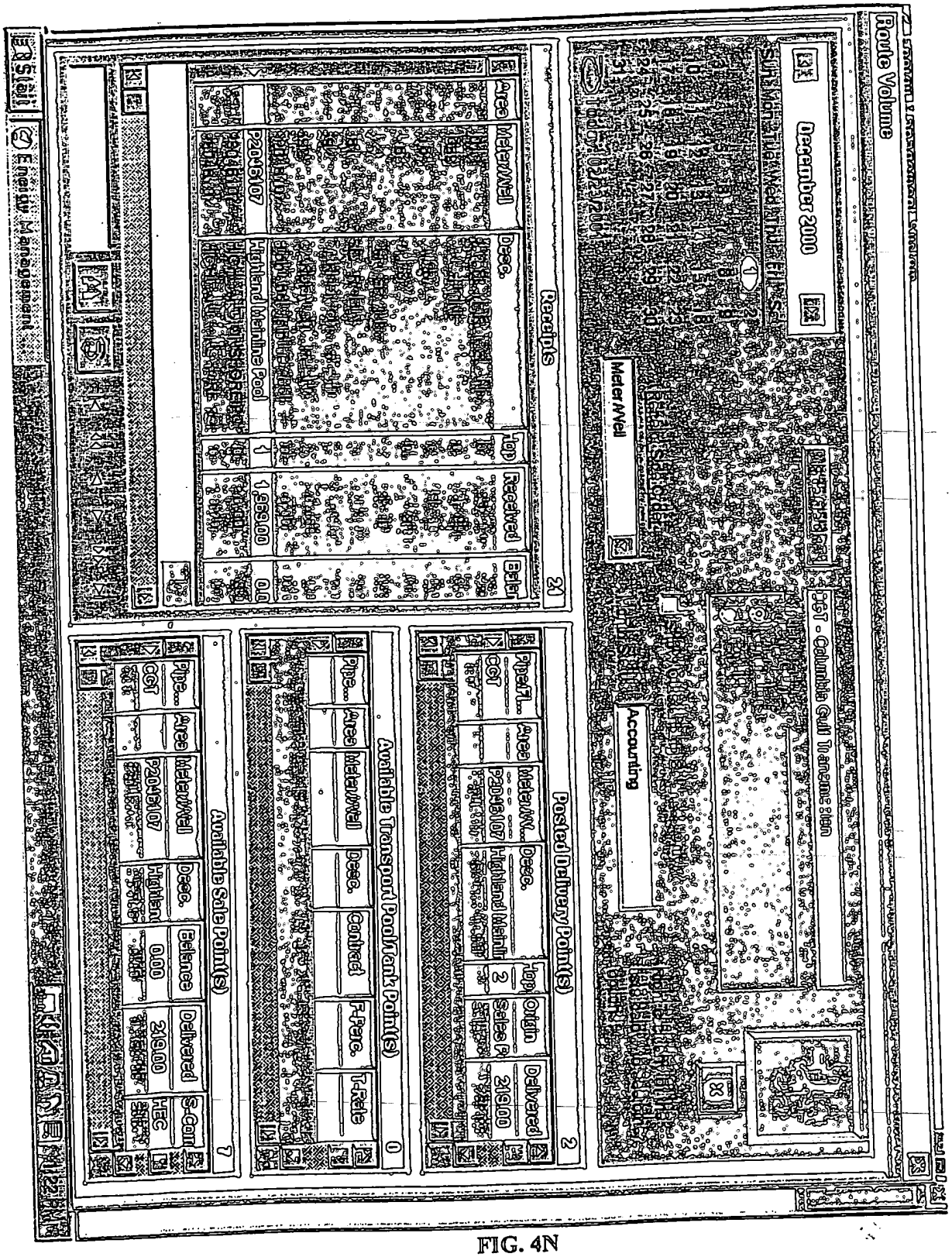
Route Volume
December 2000
Meter/Well
Accounting
Receipts
Posted Delivery Point(s)
Available Transport Pool/Mark Point(s)
Available Sale Point(s)

FIG. 4N

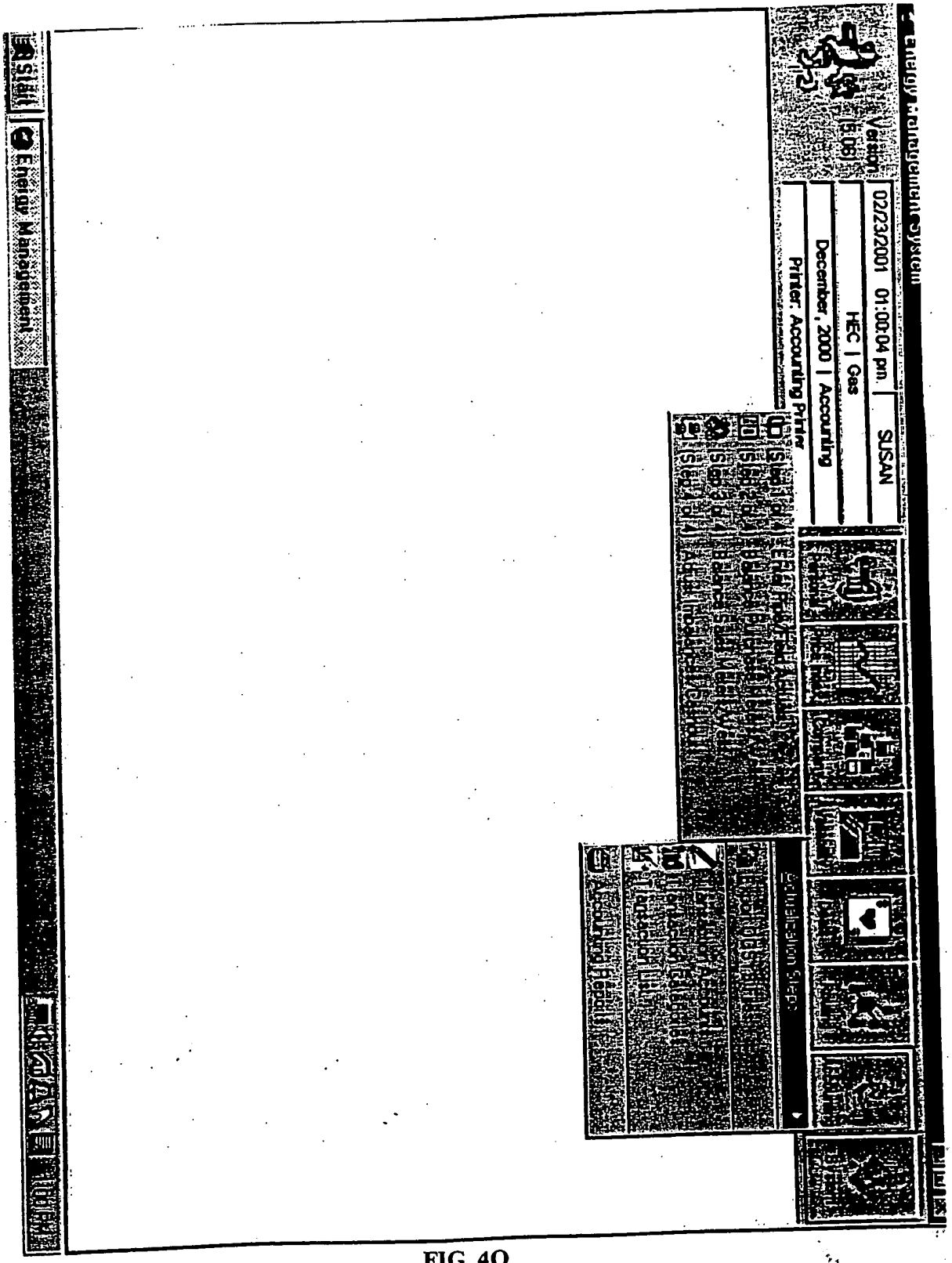
Energy Management System
02/23/2001 01:00:04 pm
SUSAN
HEC | Gas
December, 2000 | Accounting
Printer: Accounting Printer
Start
Energy Management
Simulation Steps

FIG. 4O

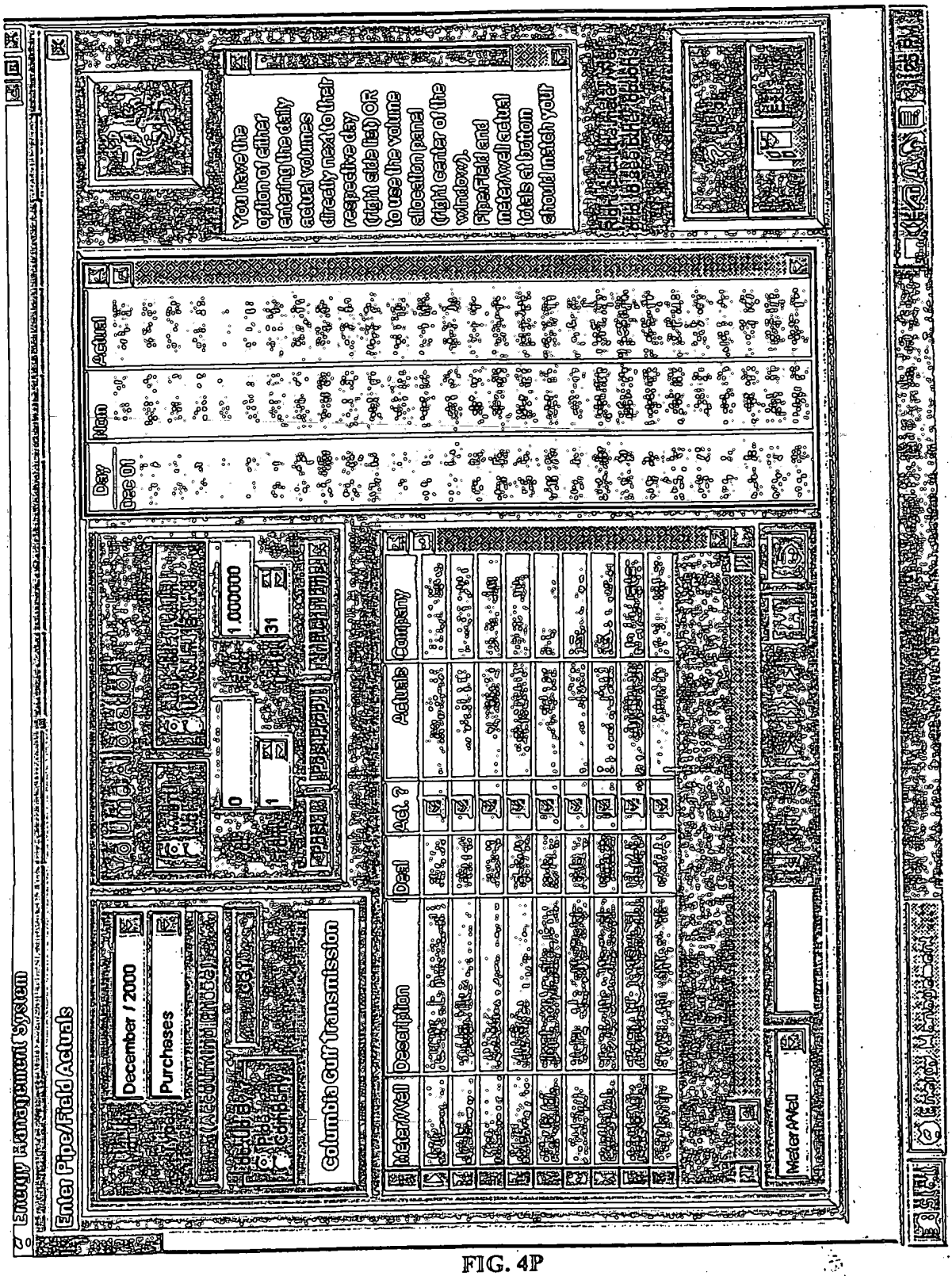
Energy Management System
Enter Pipe/Field Actuals
December / 2000
Purchases
Columbia Gulf Transmission
Day
Dec 01
Main
Actuals
You have the option of either entering the daily actual volumes directly next to the respective day (right side list) OR to use the volume allocation panel (right center of the window). Pipefield and meter/well actual totals at bottom should match your
Meter/Well
Description
Deal
Act. ?
Actuals
Company
Meter/Well

FIG. 4P

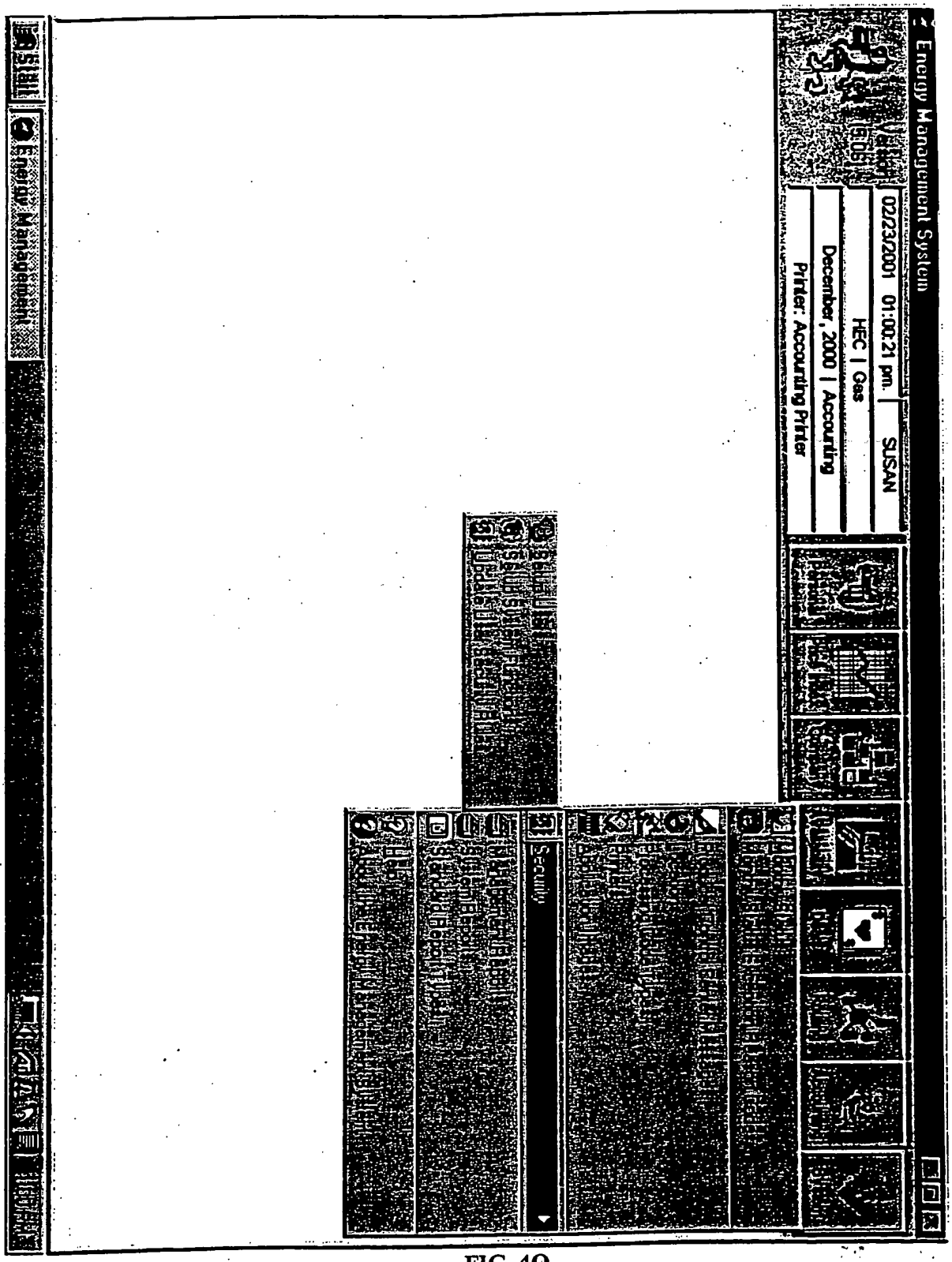

FIG. 4Q

PROTECT-EP05950

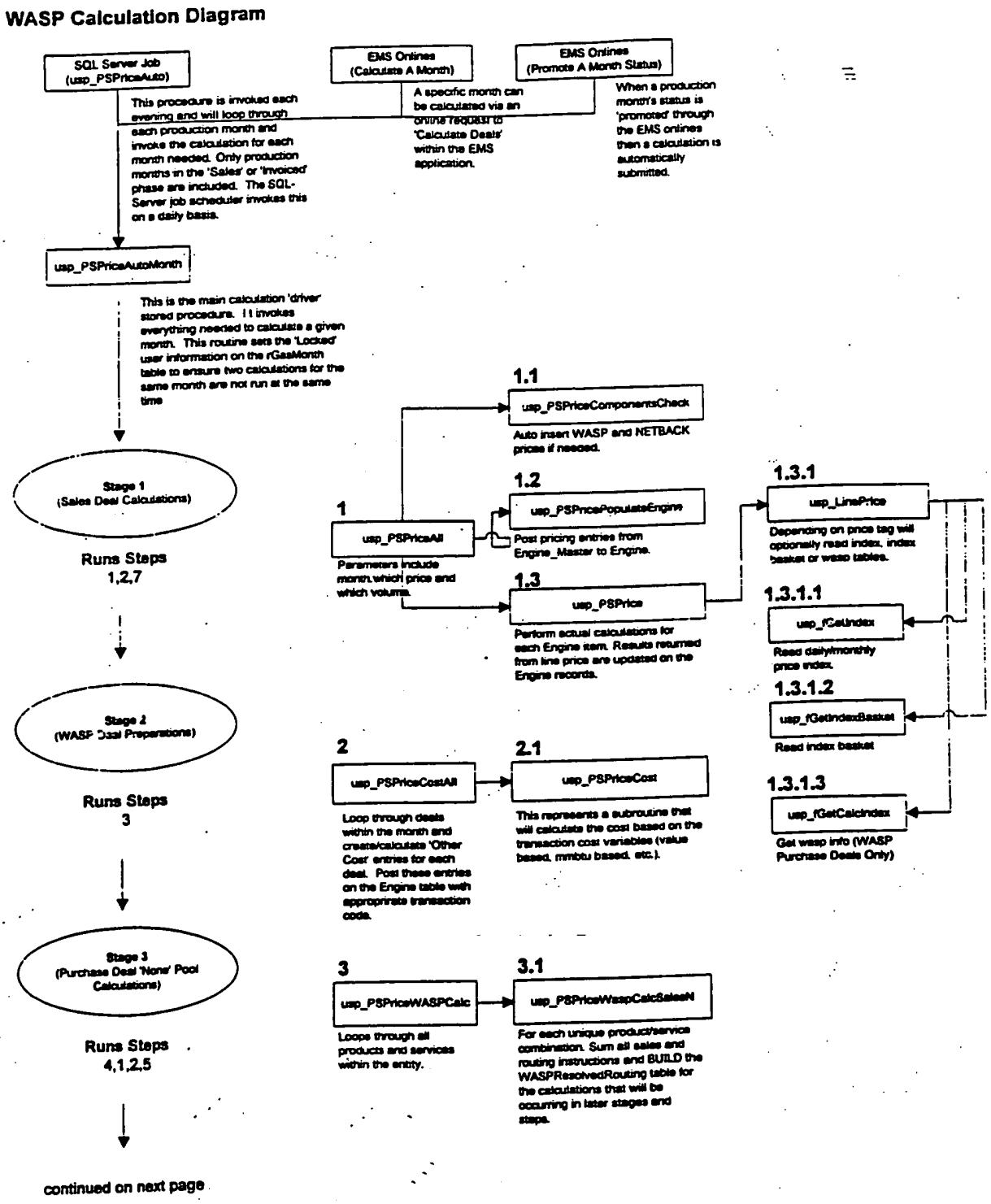
WASP Calculation Diagram
SQL Server Job (usp_PSPriceAuto)
This procedure is invoked each evening and will loop through each production month and invoke the calculation for each month needed. Only production months in the 'Sales' or 'Invoiced' phase are included. The SQL-Server job scheduler invokes this on a daily basis.
EMS Onlines (Calculate A Month)
A specific month can be calculated via an online request to 'Calculate Deals' within the EMS application.
EMS Onlines (Promote A Month Status)
When a production month's status is 'promoted' through the EMS onlines then a calculation is automatically submitted.
usp_PSPriceAutoMonth
This is the main calculation 'driver' stored procedure. It invokes everything needed to calculate a given month. This routine sets the 'Locked' user information on the rGasMonth table to ensure two calculations for the same month are not run at the same time
Stage 1 (Sales Deal Calculations)
Runs Steps 1,2,7
Stage 2 (WASP Deal Preparations)
Runs Steps 3
Stage 3 (Purchase Deal 'None' Pool Calculations)
Runs Steps 4,1,2,5
continued on next page
1
usp_PSPriceAll
Parameters include month,which price and which volume.
1.1
usp_PSPriceComponentsCheck
Auto insert WASP and NETBACK prices if needed.
1.2
usp_PSPricePopulateEngine
Post pricing entries from Engine_Master to Engine.
1.3
usp_PSPrice
Perform actual calculations for each Engine item. Results returned from line price are updated on the Engine records.
1.3.1
usp_LinePrice
Depending on price tag will optionally read index, index basket or wasp tables.
1.3.1.1
usp_fGetIndex
Read daily/monthly price index.
1.3.1.2
usp_fGetIndexBasket
Read index basket
1.3.1.3
usp_fGetCalcIndex
Get wasp info (WASP Purchase Deals Only)
2
usp_PSPriceCostAll
Loop through deals within the month and create/calculate 'Other Cost' entries for each deal. Post these entries on the Engine table with appropriate transaction code.
2.1
usp_PSPriceCost
This represents a subroutine that will calculate the cost based on the transaction cost variables (value based, mmbtu based, etc.).
3
usp_PSPriceWASPCalc
Loops through all products and services within the entity.
3.1
usp_PSPriceWaspCalcSalesN
For each unique product/service combination. Sum all sales and routing instructions and BUILD the WASPResolvedRouting table for the calculations that will be occuring in later stages and steps.

FIG. 5A

WASP Calculation Diagram (2 of 2)

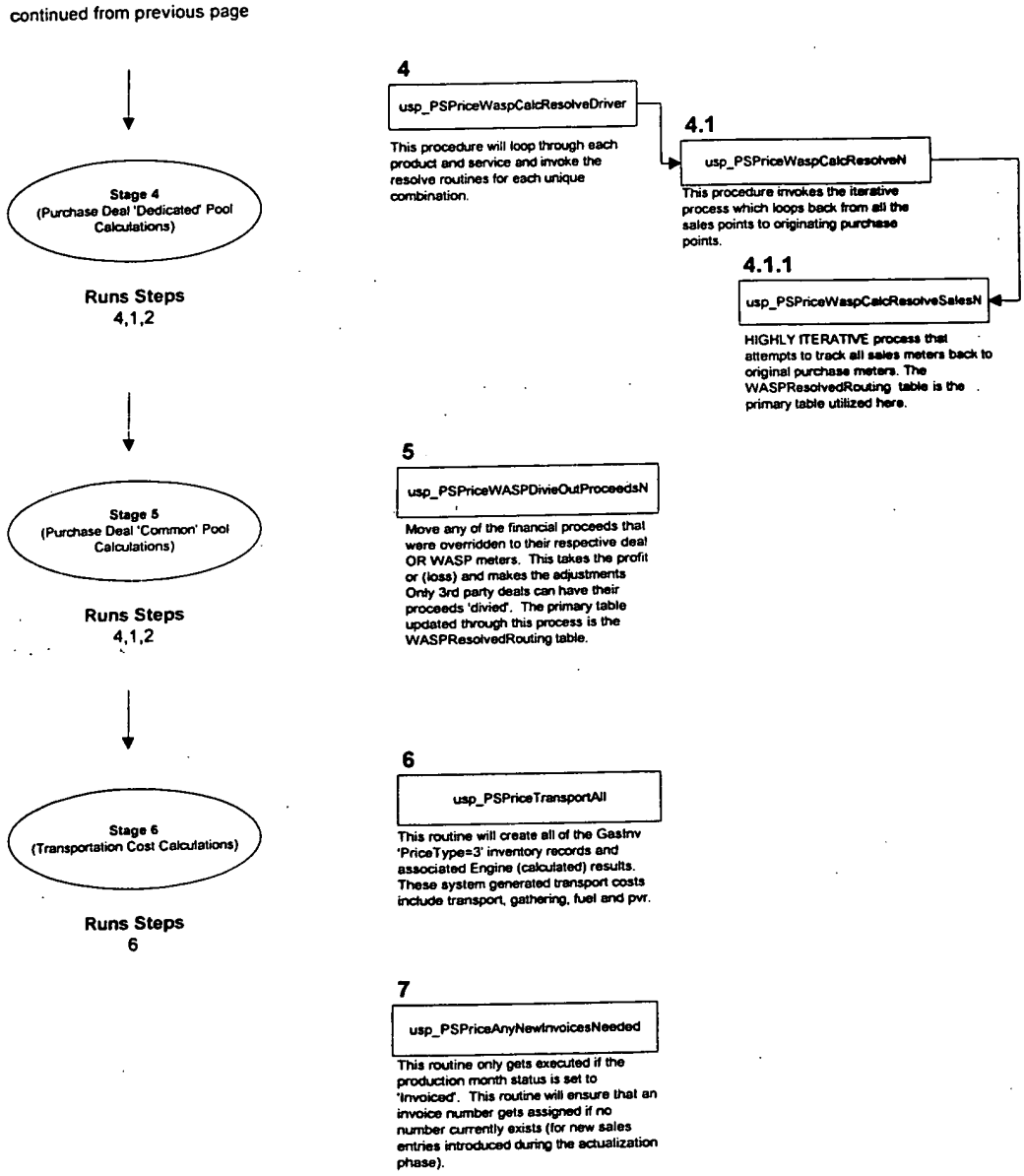

FIG. 5B

09895011 062801